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VOLUME NO. 1

EXPLANATORY NOTES

FOR

DEPARTMENT OF AGRICULTURE

BUDGET ESTIMATES

FISCAL YEAR

1942

U. S. D. A.

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PROJECT STATEMENTS

Following the custom of previous years, for the sake of simplicity and avoidance of confusion, "Project Statements" as shown in this book in general are limited to a breakdown of funds appropriated or allotted directly to the Department of Agriculture and do not generally include funds transferred from other Departments or establishments, although the latter are included in the Budget expenditure schedules under the items involved.

The Project Statements printed in the formal Budget and reprinted in the Subcommittee Print include, in addition to the direct funds, projects dealing with funds transferred from other Departments--for example, funds received from such agencies as the Navy Department or the Veterans' Administration for the inspection of meats by the Bureau of Animal Industry. Where it is desired to examine a project statement which includes such transferred funds, therefore, reference should be made to the Project Statements in the Budget or to the Subcommittee Print.

United States Department of Agriculture
Budget Estimates, 1942, Compared with Appropriations, 1941 a/

Note: Figures in brackets [] not included in totals.

Item	Appropriation 1941 (revised)	Budget Estimate, 1942	Increase or Decrease, 1942
Group I, Action Programs:			
Agricultural conservation program (AAA)	\$461,321,220	\$498,921,220	+ \$37,600,000
Parity payments (AAA)	211,866,160	b/ 49,866,160	- 162,000,000
Sugar Act	47,923,960	47,923,960	- -
Disposal of surplus commodities:			
Permanent appropriation Section 32	(100,925,859)	100,000,000	- 925,859)
Annual appropriation	(134,777,463)	100,000,000	- 34,777,463)
Federal Crop Insurance Act:			
Administrative and operating expenses	5,434,488	5,734,488	+ 300,000
Subscriptions to capital stock ...	20,000,000	- -	- 20,000,000
Farm Tenant Act:			
Farm tenancy (loans, Title I):			
Salaries and expenses	2,618,476	2,449,962	- 168,514
Loans (R.F.C. Funds)	[50,000,000]	[50,000,000]	- -
Liquidation and management of resettlement projects (Title IV)	1,488,689	738,689	- 750,000
Land utilization program (Title III)	2,278,239	2,278,239	- -
Payments to counties from sub-marginal land program	32,200	39,700	+ 7,500
Loans, grants, and rural rehabilitation:			
Appropriated funds	62,698,285	66,000,000	+ 3,301,715
R.F.C. funds for loans	[125,000,000]	[100,000,000]	[-25,000,000]
Rural Electrification Administration:			
Administrative expenses	c/ 3,406,425	3,946,000	+ 539,575
Loans (R.F.C. Funds)	[100,000,000]	[40,000,000]	[-60,000,000]
Water Facilities Act	500,000	500,000	- -
Cooperative Farm Forestry	400,000	400,000	- -
Soil erosion control program	18,706,140	20,543,684	+ 1,837,544
Commodity Credit Corporation:			
Admin. expenses from Corp. funds .	[1,998,680]	[1,500,000]	[-498,680]
Farm Credit Administration:			
Salaries and expenses:			
Appropriated funds d/.....	7,551,370	7,470,000	- 81,370
Amount chargeable against activities administered by FCA ...	[1,651,256]	[1,420,166]	[-231,090]
Farmers' crop production and harvesting loans:			
Reappropriation	18,568,684	6,908,684	- 11,660,000
Collections available	[15,000,000]	[17,700,000]	[+2,700,000]
Fees & assessments, Fed. Cre. Unions	142,900	158,000	+ 15,100
Federal Farm Mortgage Corporation e/	[8,700,000]	[8,350,000]	[-350,000]
Flood Control (Tr. from War Dept.) .	[1,998,117]	[998,342]	[-999,775]
Total, action programs	1,100,640,558	913,878,786	- 186,761,772

Item	Appropriation 1941 (revised)	Budget Estimate, 1942	Increase Decrease, 1942
Group II, Other Activities:			
Office of the Secretary	\$704,555	\$708,765	+ \$4,210
Office of the Solicitor	209,535	209,535	- -
Office of Information	f/ 1,917,994	1,894,994	- 23,000
Library	102,000	102,000	- -
Office of Experiment Stations:			
Payments to States for agricul- tural experiment stations	6,862,500	6,862,500	- -
Salaries and expenses	244,735	244,735	- -
Special Research Fund	1,400,000	1,200,000	- 200,000
Extension Service:			
Payments to States for agricul- tural extension work	18,498,083	18,536,083	+ 38,000
Salaries and expenses	790,000	860,000	+ 70,000
Bureau of Agricultural Economics ...	3,120,000	3,120,000	- -
Office of Foreign Agricultural Relations	196,396	221,716	+ 25,320
Bureau of Animal Industry:			
Eradicating tuberculosis and Bang's disease:			
Direct appropriation	{ 4,293,140	5,843,140	+ 1,550,000}
Reappropriation	{ 4,000,000	750,000	- 3,250,000}
Other work of bureau	8,146,160	8,113,432	- 32,728
Bureau of Dairy Industry	731,305	731,305	- -
Bureau of Plant Industry	5,178,455	5,168,455	- 10,000
Forest Service:			
Forest-fire cooperation	2,190,000	2,490,000	+ 300,000
Acquisition of forest lands	988,000	1,988,000	+ 1,000,000
Payments to States, roads and trails for States, and acquisi- tion of land from national- forest receipts	2,006,973	2,251,973	+ 245,000
Hurricane damage repair, White Mt. National Forest:			
Reappropriation	g/ 72,688	- -	- 72,688
Other work, including protection and management of national forests, research, etc.	13,684,455	13,832,955	+ 148,500
Forest roads and trails	8,955,500	9,955,500	+ 1,000,000
Bureau of Agricultural Chemistry and Engineering	905,225	862,214	- 43,011
Bureau of Entomology and Plant Quarantine	5,362,917	5,301,932	- 60,985
White pine blister rust control	1,044,000	h/ 1,409,000	h/ + 365,000
Agricultural Marketing Service	6,297,808	6,322,808	+ 25,000
Bureau of Home Economics	323,045	333,045	+ 10,000
Enforcement of Comm. Exchange Act ..	615,000	626,000	+ 11,000
Beltsville Research Center	86,620	86,620	- -
Total, above items	98,927,089	100,026,707	+ 1,099,618

Item	Appropriation: 1941 (revised)	Budget Estimate, 1942	Increase Decrease, 1942
Group II, Other Activities (Contd.):			
Special items:			
Relocation of Arlington Farm	[3,200,000]	- -	[-3,200,000]
Rubber investigations	500,000	- -	- 500,000
New England hurricane damage:			
Direct appropriation	{300,000	- -	-300,000
Reappropriation	{869,236	- -	-869,236
Repair of roads, national forests in Georgia, North Carolina, South Carolina, and Tennessee ..	125,000	- -	- 125,000
Total, special items	1,794,236	- -	- 1,794,236
Total, other activities	100,721,325	100,026,707	- 694,618
TOTAL, APPROPRIATIONS AND REAPPROPRIATIONS	$\frac{1}{1,201,361,883}$	1,013,905,493	- 187,456,390
Deduct reappropriations included in foregoing:			
Agricultural conservation program ..	- 23,400,000	- -	+ 23,400,000
Sugar Act	- 1,300,000	- -	+ 1,300,000
Federal Crop Insurance Act	- 100,000	- -	+ 100,000
Farm Tenant Act:			
Title I (tenancy loans)	- 168,514	- -	+ 168,514
Title III (submarginal land program)	- 924,920	- -	+ 924,920
Loans, grants, and rural rehabilitation	- 4,000,000	- -	+ 4,000,000
Eradicating tuberculosis and Bang's disease (Animal Industry)	- 4,000,000	- 750,000	+ 3,250,000
New England hurricane damage	- 869,236	- -	+ 869,236
Hurricane damage repair, White Mt. National Forest	- 72,688	- -	+ 72,688
Farm Credit Administration:			
Salaries and expenses	- 3,900,000	- 3,660,000	+ 240,000
Farmers' crop production and harvesting loans	- 18,568,684	- 6,908,684	+ 11,660,000
Total, deductions, as above ...	- 57,304,042	- 11,318,684	+ 45,985,358
TOTAL, DIRECT APPROPRIATIONS	$\frac{1}{1,144,057,841}$	1,002,586,809	- 141,471,032

4
TRUST FUNDS

Item	Appropriation 1941(revised)	Budget Estimate, 1942	Increase or Decrease, 1942
Forest Service: Cooperative work	\$1,000,000	\$1,000,000	- -
Agricultural Marketing Service:			
Farm products inspections	359,850	455,800	+ 65,950
Classification of cotton for Commodity Credit Corporation	375,000	375,000	- -
Farm Security Administration:			
Payments in lieu of taxes and for operation and maintenance of resettlement projects	2,250,000	2,000,000	- 250,000
State Rural Rehabilitation Corpora- tion funds	2,150,000	1,925,000	- 225,000
Miscellaneous contributed funds	63,000	89,000	+ 26,000
Total, trust funds	6,227,850	5,844,800	- 383,050

- a/ The 1941 appropriations have been revised to show transfers pursuant to Reorganization Plan IV and transfers in the 1942 Estimates. For details, see subappropriation table which follows.
- b/ Obligations for parity payments subject to approval by the President; including authority to obligate an additional sum of not to exceed \$162,000,000, or in all, not to exceed \$211,866,160.
- c/ Exclusive of \$23,000 transferred to "Printing and binding, Office of Information".
- d/ Appropriations made to Treasury Department for payments to Federal Land Banks on account of reductions in interest rates, as follows: \$28,167,000 for 1941, and \$27,300,000 estimated for 1942.
- e/ Appropriations made to Treasury Department for payments on account of reductions in interest rates, as follows: \$10,000,000 for 1941, and \$9,600,000 estimated for 1942.
- f/ Inclusive of \$23,000 transferred from "Salaries and expenses, Rural Electrification Administration."
- g/ Unobligated balance of the appropriation "National forest protection and management," carried in the First Deficiency Appropriation Act, 1939, reappropriated for 1941.
- h/ Includes \$215,000 for transfer to Department of the Interior.
- i/ Excludes \$11,372,221 transferred from the Department to other agencies pursuant to Reorganization Plan No. IV, and \$640,836 for rent of buildings in the District of Columbia transferred to the Federal Works Agency in the 1942 Estimates.

United States Department of Agriculture
Subappropriation Table of Budget Estimates, 1942, Compared with Appropriations, 1941

Note: Figures in brackets [] not included in totals

Bureau and Item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
OFFICE OF THE SECRETARY:			
Salaries	a/ \$605,614	\$609,424	+ \$3,810
Miscellaneous expenses	b/ 98,941	99,341	+ 400
Rent of buildings	c/	c/	c/
Total	704,555	708,765	+ 4,210
OFFICE OF THE SOLICITOR	d/ 209,535	209,535	- -
OFFICE OF INFORMATION:			
Salaries and expenses	e/ 344,883	344,883	- -
Printing and binding	f/ 1,573,111	1,550,111	- 23,000
Total	1,917,994	1,894,994	- 23,000
LIBRARY	g/ 102,000	102,000	- -
OFFICE OF EXPERIMENT STATIONS:			
Payments to States:			
Hatch Act	720,000	720,000	- -
Adams Act	720,000	720,000	- -
Purnell Act	2,880,000	2,880,000	- -
Hawaii	67,500	67,500	- -
Alaska	25,000	25,000	- -
Puerto Rico	50,000	50,000	- -
Title I, Bankhead-Jones Act	2,400,000	2,400,000	- -
Total, payments to States .	6,862,500	6,862,500	- -

- a/ Excludes transfers of \$3,000 to Department of the Interior, \$5,671 to Department of Commerce, and \$10,935 to Federal Security Agency pursuant to Reorganization Plan No. IV: excludes \$5,000 transferred to Federal Works Agency in the 1942 Estimates; and includes \$32,600 transferred in the 1942 Estimates as follows: From "Eradicating tuberculosis and Bang's disease, Bureau of Animal Industry," \$6,860; from "Salaries and expenses, Soil Conservation Service," \$11,400; and from "Salaries and expenses, Farm Credit Administration," \$14,340.
- b/ Excludes transfers of \$418 to Department of Commerce, \$841 to Federal Security Agency and \$4,800 to Post Office Department pursuant to Reorganization Plan No. IV.
- c/ Appropriation of \$165,502 in 1941 transferred as follows: \$16,030 to Department of Commerce pursuant to Reorganization Plan No. IV, and \$149,472 to Federal Works Agency in 1942 Estimates.
- d/ Excludes transfers of \$700 to Department of the Interior, \$1,225 to Department of Commerce, and \$60,000 to Federal Security Agency pursuant to Reorganization Plan No. IV; and includes \$3,180 transferred from "Meat inspection, Bureau of Animal Industry" in the 1942 Estimates.
- e/ Excludes transfers of \$800 to Department of the Interior, \$1,944 to Department of Commerce, \$2,273 to Federal Security Agency, and \$100 to Post Office Department pursuant to Reorganization Plan No. IV.
- f/ Excludes transfers of \$5,000 to Department of the Interior, \$60,000 to Department of Commerce, and \$22,324 to Federal Security Agency pursuant to Reorganization Plan No. IV; and includes \$23,000 transferred from "Salaries and expenses, Rural Electrification Administration."
- g/ Excludes transfers of \$1,000 to Department of Commerce and \$2,000 to Federal Security Agency pursuant to Reorganization Plan No. IV.

Bureau and Item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
OFFICE OF EXPERIMENT STATIONS: (contd.)			
Salaries and expenses:			
Administration of grants to States and coordination of research	\$161,735	\$161,735	- -
Insular experiment stations	83,000	83,000	- -
Total, salaries & expenses ..	244,735	244,735	- -
Total	7,107,235	7,107,235	- -
SPECIAL RESEARCH FUND	1,400,000	1,200,000	- 200,000
EXTENSION SERVICE:			
Payments to States:			
Capper-Ketcham extension work	1,480,000	1,480,000	- -
Extension work, Act of April 24, 1939:	203,000	203,000	- -
Extension work, Section 21, Bankhead- Jones Act	12,000,000	12,000,000	- -
Alaska	23,918	23,918	- -
Puerto Rico	90,000	128,000	+ 38,000
Cooperative agricultural extension work (permanent)	4,701,165	4,701,165	- -
Total, Payments to States ...	18,498,083	18,536,083	+ 38,000
Salaries and expenses:			
Administration and coordination of extension work	550,000	620,000	+ 70,000
Extension information	240,000	240,000	- -
Total, salaries & expenses ..	790,000	860,000	+ 70,000
Total	19,288,083	19,396,083	+ 108,000
BUREAU OF AGRICULTURAL ECONOMICS <u>a/</u>	<u>b/</u> 3,120,000	3,120,000	- -
OFFICE OF FOREIGN AGRICULTURAL RELATIONS	196,396	221,716	+ 25,320
BUREAU OF ANIMAL INDUSTRY:			
General administrative expenses	<u>c/</u> 170,020	170,020	- -
Animal husbandry	824,380	824,380	- -
Diseases of animals	462,000	462,000	- -
Eradicating tuberculosis and Bang's disease:			
Direct appropriation	<u>d/</u> 4,293,140	5,843,140	+ 1,550,000
Reappropriation	4,000,000	750,000	- 3,250,000
Eradicating cattle ticks	325,000	300,000	- 25,000
Hog-cholera control	112,728	105,000	- 7,728
Inspection and quarantine	603,500	603,500	- -
Meat inspection	<u>e/</u> 5,429,820	5,429,820	- -
Virus Serum Toxin Act	218,712	218,712	- -
Total	16,439,300	14,706,572	- 1,732,728

a/ Appropriations carried under this head in 1941 consolidated in 1942 Estimates.

b/ Includes \$2,262,895 allotted from other appropriations in 1941 and transferred in 1942 Estimates. Excludes \$6,795 transferred to Federal Works Agency in 1942 Estimates.

c/ Excludes \$100 transferred to the Post Office Department pursuant to Reorganization Plan No. IV.

d/ Excludes \$6,860 transferred to "Salaries, Office of the Secretary" in 1942 Estimates.

e/ Excludes \$3,180 transferred to "Salaries and expenses, Office of the Solicitor" in the 1942 Estimates.

Bureau and item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
BUREAU OF DAIRY INDUSTRY:			
General administrative expenses	a/ \$75,400	\$75,400	--
Dairy investigations	655,905	655,905	--
Total	731,305	731,305	--
BUREAU OF PLANT INDUSTRY:			
General administrative expenses	209,942	209,942	--
Arlington Farm	49,414	49,414	--
Cereal crops and diseases	b/ 565,000	565,000	--
Cotton and other fiber crops and diseases	c/ 443,535	443,535	--
Drug and related plants	43,500	48,500	+ 5,000
Dry-land agriculture	226,828	226,828	--
Forage crops and diseases	300,000	300,000	--
Forest pathology	245,000	245,000	--
Fruit and vegetable crops and diseases	d/1,426,362	1,426,362	--
Irrigation agriculture	e/ 140,500	140,500	--
National Arboretum	54,587	54,587	--
Plant exploration, introduction, and surveys	f/ 350,947	350,947	--
Soil and fertilizer investigations ..	g/ 370,021	355,021	- 15,000
Soil survey	275,000	275,000	--
Sugar-plant investigations	h/ 337,275	337,275	--
Tobacco investigations	140,544	140,544	--
Total, salaries & expenses.	5,178,455	5,168,455	- 10,000
Rubber investigations	i/ 500,000	--	- 500,000
Total	5,678,455	5,168,455	- 510,000

- a/ Excludes \$100 transferred to the Post Office Department pursuant to Reorganization Plan No. IV.
- b/ Includes amounts from appropriations consolidated in the 1942 Estimates, as follows: From "Botany," \$40,000; and from "Genetics and biophysics," \$25,000.
- c/ Includes \$35,190 from "Soil fertility investigations," consolidated in 1942 Estimates.
- d/ Includes amounts from appropriations consolidated in the 1942 Estimates, as follows: From "Botany," \$5,000; from "Experimental greenhouse maintenance," \$77,372; and from "Soil fertility investigations," \$43,990.
- e/ Includes \$7,000 provided by the Second Deficiency Appropriation Act, 1940.
- f/ Includes amounts from appropriations consolidated in the 1942 Estimates, as follows: From "Botany," \$31,635; from "Mycology and disease survey," \$45,818; and from "Nematology," \$48,961.
- g/ Includes amounts from appropriations consolidated in the 1942 Estimates, as follows: From "Fertilizer investigations," \$240,000; from "Soil Chemical and physical investigations," \$70,000; from "Soil-fertility investigations," \$20,167; and from "Soil microbiology investigations," \$39,854.
- h/ Includes \$22,275 from "Soil fertility investigations," consolidated in 1942 Estimates.
- i/ Provided by the Second Deficiency Appropriation Act, 1940.

Bureau and Item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
RELOCATION OF ARLINGTON FARM (Transfer from War Dept.)	a/ [\$3,200,000]	- -	[-\$3,200,000]
FOREST SERVICE:			
Salaries and expenses:			
General administrative expenses ..	b/ 598,520	\$598,520	- -
National forest protection and management	c/ 10,837,500	10,986,000	+ 148,500
Hurricane damage repair, White Mt. National Forest:			
Reappropriation	d/ 72,688	- -	- 72,688
Reconstruction and repair of roads, National Forests in Ga., N. Caro., S. Caro., and Tenn. ..	e/ 125,000	- -	- 125,000
Water rights	20,000	20,000	- -
Fighting forest fires	100,000	100,000	- -
Private forestry cooperation	f/ 98,000	98,000	- -
Forest management	605,000	605,000	- -
Range investigations	270,935	270,935	- -
Forest products	632,500	632,500	- -
Forest survey	g/ 247,000	247,000	- -
Forest economics	140,000	140,000	- -
Forest influences	135,000	135,000	- -
Total, salaries & expenses	13,882,143	13,832,955	- 49,188
Forest fire cooperation	h/ 2,190,000	2,490,000	+ 300,000
New England hurricane damage:			
Direct appropriation	300,000	- -	- 300,000
Reappropriation	869,236	- -	- 869,236
Acquisition of lands for national forests	i/ 988,000	1,988,000	+ 1,000,000
Acquisition of lands from forest receipts	71,000	316,000	+ 245,000
Total, annual appropria- tions, General Account..	18,300,379	18,626,955	+ 326,576

- a/ Provided by the First Supplemental Civil Functions Appropriation Act, 1941.
- b/ Excludes \$1,480 transferred to the Post Office Department pursuant to Reorganization Plan No. IV.
- c/ Excludes transfers in 1942 Estimates as follows: To "Salaries and expenses, Bureau of Agricultural Economics," \$18,500; and to "White pine blister rust control," \$644,000.
- d/ Unobligated balance of the appropriation "National forest protection and management," carried in the First Deficiency Appropriation Act, 1939, reappropriated for 1941.
- e/ Provided by the First Supplemental Civil Functions Appropriation Act, 1941.
- f/ Excludes \$2,000 transferred to "Salaries and expenses, Bureau of Agricultural Economics," in the 1942 Estimates.
- g/ Excludes \$3,000 transferred to "Salaries and expenses, Bureau of Agricultural Economics" in the 1942 Estimates.
- h/ Excludes \$10,000 transferred to "Salaries and expenses, Bureau of Agricultural Economics" in the 1942 Estimates.
- i/ Excludes \$12,000 transferred to "Salaries and expenses, Bureau of Agricultural Economics" in the 1942 Estimates.

Bureau and Item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
FOREST SERVICE: (contd.)			
Payments to States and territories from the national forests fund ...	\$1,432,581	\$1,432,581	- -
Payments to school funds, Arizona and New Mexico, national forests fund	23,392	23,392	- -
Roads and trails for States, national forests fund	480,000	480,000	- -
Total	20,236,352	20,562,928	+ \$326,576
FOREST ROADS AND TRAILS	a/ 8,955,500	9,955,500	+ 1,000,000
BUREAU OF AGRICULTURAL CHEMISTRY AND ENGINEERING:			
General administrative expenses	b/ 105,200	105,200	- -
Agricultural chemical investigations	379,606	342,564	- 36,942
Industrial utilization of farm products and byproducts	22,550	- -	- 22,550
Agricultural engineering investiga- tions	304,469	321,950	+ 17,481
Naval-stores investigations	93,400	92,400	- 1,000
Total	905,225	862,214	- 43,011
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE:			
General administrative expenses	c/ 165,980	165,980	- -
Fruit insects	424,600	424,600	- -
Japanese beetle control	d/ 425,000	425,000	- -
Sweetpotato weevil control	70,000	70,000	- -
Mexican fruitfly control	167,960	175,460	+ 7,500
Citrus canker eradication	13,485	- -	- 13,485
Gypsy and brown-tail moth control ..	375,000	375,000	- -
Dutch elm disease eradication	400,000	300,000	- 100,000
Phony peach and peach mosaic eradica- tion	89,800	89,800	- -
Forest insects	212,500	212,500	- -
Truck crop and garden insects	356,580	356,580	- -
Cereal and forage insects	379,500	379,500	- -
European corn borer control	27,939	27,939	- -
Barberry eradication	162,500	182,500	+ 20,000
Cotton insects	144,544	144,544	- -
Pink bollworm & Thurberia weevil control	526,800	526,800	- -
Bee culture	83,000	83,000	- -
Insects affecting man and animals ..	181,500	181,500	- -
Insect-pest survey and identification	154,790	154,790	- -
Foreign parasites	38,000	38,000	- -
Control investigations	72,518	72,518	- -
Insecticide and fungicide investiga- tions	125,000	130,000	+ 5,000
Transit inspection	44,059	44,059	- -
Foreign plant quarantines	680,000	700,000	+ 20,000
Certification of exports	31,862	31,862	- -
Total	e/ 5,362,917	5,301,932	- 60,985

a/ Excludes \$44,500 transferred to "Salaries and expenses, Bureau of Agricultural Economics," in 1942 Estimates.

b/ Excludes \$100 transferred to the Post Office Department pursuant to Reorganization Plan No. IV.

c/ Excludes \$300 transferred to the Post Office Department pursuant to Reorganization Plan No. IV.

d/ Includes \$30,000 provided by the Second Deficiency Appropriation Act, 1940.

e/ Excludes \$400,000 appropriated under this head in 1941 for "Blister rust control" and transferred to "White pine blister rust control," a new item, in 1942 Estimates.

Bureau and Item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
WHITE PINE BLISTER RUST CONTROL	<u>a/</u> 1,044,000	1,409,000	+ 365,000
AGRICULTURAL MARKETING SERVICE:			
General administrative expenses	<u>b/</u> 166,108	166,108	- -
Crop and livestock estimates	<u>c/</u> 729,000	729,000	- -
Market news service	1,125,000	1,125,000	- -
Market inspection of farm products ..	459,000	459,000	- -
Marketing farm products	400,000	400,000	- -
Tobacco Inspection and Tobacco Stocks and Standards Acts	433,000	433,000	- -
Perishable Agricultural Commodities and Produce Agency Acts	152,000	152,000	- -
Standard Container Acts	10,000	10,000	- -
Cotton quality statistics and classing Acts	465,000	465,000	- -
United States Cotton Futures and United States Cotton Standards Acts	490,000	490,000	- -
United States Grain Standards Act ...	723,941	748,941	+ 25,000
United States Warehouse Act	450,000	450,000	- -
Federal Seed Act	85,000	85,000	- -
Packers and Stockyards Act	381,879	381,879	- -
Naval Stores Act	<u>d/</u> 34,700	34,700	- -
Enforcement of the Insecticide Act ..	<u>d/</u> 193,180	193,180	- -
Total	6,297,808	6,322,808	+ 25,000
BUREAU OF HOME ECONOMICS:			
General administrative expenses	31,735	31,735	- -
Home economics investigations	291,310	301,310	+ 10,000
Total	323,045	333,045	+ 10,000
ENFORCEMENT OF THE COMMODITY EXCHANGE ACT			
	<u>e/</u> 615,000	626,000	+ 11,000

a/ Includes transfers in the 1942 Estimates, as follows: From "National forest protection and management, Forest Service," \$644,000; and from "Blister rust control, Bureau of Entomology and Plant Quarantine," \$400,000.

b/ Includes \$8,802 transferred from "General administrative expenses, Food and Drug Administration" pursuant to Reorganization Plan No. IV.

c/ Includes \$4,000 transferred from "Observations, warnings, and general weather service, Weather Bureau," pursuant to Reorganization Plan No. IV.

d/ Transferred from the Food and Drug Administration pursuant to Reorganization Plan No. IV.

e/ Includes \$40,000 provided by Public Resolution, Numbered 106, 76th Congress, approved October 14, 1940.

Bureau and Item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
SOIL CONSERVATION SERVICE:			
General administrative expenses	a/ \$511,790	\$510,334	- \$1,456
Soil and moisture conservation and land-use investigations	1,500,000	1,500,000	- -
Soil and moisture conservation and land-use operations, demonstra- tions, and information	b/16,619,350	18,458,350	+ 1,839,000
Emergency erosion control, Everglades region, Florida	75,000	75,000	- -
Total	18,706,140	20,543,684	+ 1,837,544
CONSERVATION AND USE OF AGRICULTURAL LAND RESOURCES:			
Direct appropriation	c/437,921,220	498,921,220	+ 61,000,000
Reappropriation	23,400,000	- -	- 23,400,000
Total	461,321,220	498,921,220	+ 37,600,000
PARITY PAYMENTS	d/211,866,160	e/49,866,160	-162,000,000
COMMODITY CREDIT CORPORATION:			
Administrative expenses from Corporation funds	f/[1,998,680]	[1,500,000]	[- 498,680]
DISPOSAL OF SURPLUS COMMODITIES:			
Permanent appropriation Section 32..	100,925,859	100,000,000	- 925,859
Annual appropriation	g/134,777,463	100,000,000	- 34,777,463
Total	235,703,322	200,000,000	- 35,703,322
SUGAR ACT:			
Direct appropriation	h/ 46,623,960	47,923,960	+ 1,300,000
Reappropriation	1,300,000	- -	- 1,300,000
Total	47,923,960	47,923,960	- -

- a/ Excludes transfers of \$33,000 to Department of the Interior and \$5,210 to the Post Office Department pursuant to Reorganization Plan No. IV.
- b/ Excludes \$2,260,000 transferred to Department of the Interior pursuant to Reorganization Plan No. IV, and transfers in the 1942 Estimates, as follows: To "Salaries, Office of the Secretary," \$11,400; and to "Salaries and expenses, Bureau of Agricultural Economics," \$75,000.
- c/ Excludes \$3,260 transferred to the Post Office Department pursuant to Reorganization Plan No. IV; and transfers in the 1942 Estimates, as follows: To "Salaries and Expenses, Bureau of Agricultural Economics," \$600,000; and to Federal Works Agency for rent of buildings in the District of Columbia, \$35,520.
- d/ Excludes transfers in the 1942 Estimates, as follows: To "Salaries and expenses, Bureau of Agricultural Economics," \$125,000; and to Federal Works Agency for rent of buildings in the District of Columbia, \$8,840.
- e/ Obligations for parity payments subject to approval by the President, including authority to obligate an additional sum of not to exceed \$162,000,000, or in all, not to exceed \$211,866,160.
- f/ Excludes \$1,320 transferred to the Post Office Department pursuant to Reorganization Plan No. IV.
- g/ Includes \$50,000 provided by the Emergency Relief Appropriation Act, 1941. Excludes \$1,248 transferred to the Post Office Department pursuant to Reorganization Plan No. IV and transfers in the 1942 Estimates, as follows: To "Salaries and expenses, Bureau of Agricultural Economics", \$150,000; and to the Federal Works Agency for rent of buildings in the District of Columbia, \$71,289.
- h/ Excludes transfers in the 1942 Estimates, as follows: To "Salaries and ex-
penses, Bureau of Agricultural Economics," \$50,000; and to the Federal Works
Agency for rent of buildings in the District of Columbia, \$1,040.

Bureau and Item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
FEDERAL CROP INSURANCE ACT:			
Administrative and operating expenses:			
Direct appropriation	a/ 5,334,488	5,734,488	+ 400,000
Reappropriation	100,000	- -	- 100,000
Total, administrative and operating expenses	5,434,488	5,734,488	+ 300,000
Subscriptions to capital stock	b/ 20,000,000	- -	- 20,000,000
FARM TENANT ACT:			
Farm tenancy (loans, Title I):			
Salaries and expenses:			
Direct appropriation	c/ 2,449,962	2,449,962	- -
Reappropriation	168,514	- -	- 168,514
Total, salaries and expenses	2,618,476	2,449,962	- 168,514
Loans (R.F.C. funds)	[50,000,000]	[50,000,000]	- -
Liquidation and management of re-settlement projects (Title IV)	d/ 1,488,689	738,689	- 750,000
Land utilization and retirement of submarginal land (Title III):			
Direct appropriation	e/ 1,353,319	2,278,239	+ 924,920
Reappropriation	924,920	- -	- 924,920
Total	2,278,239	2,278,239	- -
Payments to counties from sub-marginal land program	32,200	39,700	+ 7,500
LOANS, GRANTS, AND RURAL REHABILITATION:			
Direct appropriation	f/ 58,698,285	66,000,000	+ 7,301,715
Reappropriation	4,000,000	- -	- 4,000,000
Total	62,698,285	66,000,000	+ 3,301,715
R.F.C. funds for loans	[125,000,000]	[100,000,000]	[-25,000,000]
WATER FACILITIES, ARID AND SEMI-ARID AREAS			
AREAS	500,000	500,000	- -

- a/ Excludes transfers in 1942 Estimates, as follows: To "Salaries and expenses, Bureau of Agricultural Economics," \$76,800, and to the Federal Works Agency for rent of buildings in the District of Columbia, \$11,912.
- b/ Provided by the Second Deficiency Appropriation Act, 1940.
- c/ Excludes \$38 transferred to the Post Office Department pursuant to Reorganization Plan No. IV, and \$50,000 transferred to "Salaries and expenses, Bureau of Agricultural Economics" in the 1942 Estimates.
- d/ Excludes \$61 transferred to the Post Office Department pursuant to Reorganization Plan No. IV, and \$11,250 transferred to "Salaries and expenses, Bureau of Agricultural Economics" in the 1942 Estimates.
- e/ Excludes \$325 transferred to the Post Office Department pursuant to Reorganization Plan No. IV, and transfers in the 1942 Estimates, as follows: To "Salaries and expenses, Bureau of Agricultural Economics," \$737,000; and to the Federal Works Agency for rent of buildings in the District of Columbia, \$9,356.
- f/ Provided by the Emergency Relief Appropriation Act, fiscal year 1941, and included as a part of the general estimates in 1942. Excludes \$7,916 transferred to the Post Office Department pursuant to Reorganization Plan No. IV, and transfers in the 1942 Estimates, as follows: To "Salaries and expenses, Bureau of Agricultural Economics," \$147,845; and to the Federal Works Agency for rent of buildings in the District of Columbia, \$145,954.

Bureau and Item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
COOPERATIVE FARM FORESTRY	\$400,000	\$400,000	- -
RURAL ELECTRIFICATION ADMINISTRATION:			
Administrative expenses	a/ 3,406,425	3,946,000	+ 539,575
Loans (R.F.C. funds)	[100,000,000]	[40,000,000]	[-60,000,000]
BELTSVILLE RESEARCH CENTER	86,620	86,620	- -
FARM CREDIT ADMINISTRATION:			
Salaries and expenses:			
Direct appropriation b/	c/ 3,651,370	3,810,000	+ 158,630
Reappropriation	3,900,000	3,660,000	- 240,000
Amount chargeable against activities administered by F.C.A.	[1,651,250]	[1,420,166]	[- 231,090]
Farmers' crop production and harvesting loans:			
Reappropriation	18,568,684	6,908,684	- 11,660,000
Collections available	[15,000,000]	[17,700,000]	[+2,700,000]
Fees and assessments, Federal Credit Unions	142,900	158,000	+ 15,100
Total	26,262,954	14,536,684	- 11,726,270
FEDERAL FARM MORTGAGE CORPORATION d/	e/ [8,700,000]	[8,350,000]	[- 350,000]
FLOOD CONTROL (TRANSFER FROM WAR DEPT.) .	f/ [1,998,117]	[998,342]	[- 999,775]
TOTAL, APPROPRIATIONS AND REAPPROPRIATIONS	1,201,361,883	1,013,905,493	-187,456,390

a/ Excludes \$23,000 transferred to Office of Information for printing and binding; \$1,575 transferred to the Post Office Department pursuant to Reorganization Plan No. IV; and transfers in the 1942 Estimates, as follows: To "Salaries and expenses, Bureau of Agricultural Economics," \$50,000, and to the Federal Works Agency for rent of buildings in the District of Columbia, \$194,000.

b/ Appropriations made to Treasury Department for payments to Federal Land Banks on account of reductions in interest rates, as follows: \$26,167,000 for 1941, and \$27,300,000 estimated for 1942.

c/ Excludes \$4,290 transferred to the Post Office Department pursuant to Reorganization Plan No. IV; and transfers in the 1942 Estimates, as follows: To "Salaries, Office of the Secretary," \$14,340; and to "Salaries and expenses, Bureau of Agricultural Economics," \$100,000.

d/ Appropriations made to Treasury Department for payments on account of reductions in interest rates as follows: \$10,000,000 for 1941, and \$9,600,000 estimated for 1942.

e/ Includes \$1,700,000 made available from Corporation's funds by the Second Deficiency Appropriation Act, 1940.

f/ Excludes \$225 transferred to the Post Office Department pursuant to Reorganization Plan No. IV; and \$1,658 transferred in the 1942 Estimates to the Federal Works Agency for rent of buildings in the District of Columbia.

Bureau and Item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
DEDUCT REAPPROPRIATIONS INCLUDED IN FOREGOING:			
Conservation and use of agricultural land resources	- 23,400,000	- -	+ 23,400,000
Sugar Act	- 1,300,000	- -	+ 1,300,000
Federal Crop Insurance Act	- 100,000	- -	+ 100,000
Farm Tenant Act:			
Title I (tenancy loans)	- 168,514	- -	+ 168,514
Title III (submarginal land program)	- 924,920	- -	+ 924,920
Loans, grants, and rural rehabilita- tion	- 4,000,000	- -	+ 4,000,000
Eradicating tuberculosis and Bang's disease (Animal Industry)	- 4,000,000	- 750,000	+ 3,250,000
New England hurricane damage (Forest Service)	- 869,236	- -	+ 869,236
Hurricane damage repair, White Mt. National forest (Forest Service) ..	- 72,688	- -	+ 72,688
Farm Credit Administration:			
Salaries and expenses	- 3,900,000	- 3,660,000	+ 240,000
Crop production and harvesting loans	- 18,568,684	- 6,908,684	+ 11,660,000
Total, deductions, as above ...	- 57,304,042	- 11,318,684	+ 45,985,358
TOTAL, DIRECT APPROPRIATIONS (exclusive of trust funds)	1,144,057,841	1,002,586,809	- 141,471,032

TRUST FUNDS

Bureau and Item	Appropriation 1941	Budget Estimate, 1942	Increase or Decrease, 1942
Forest Service: Cooperative work	1,000,000	1,000,000	- -
Agricultural Marketing Service:			
Farm products inspections	389,850	455,800	+ 65,950
Classification of cotton for Commodity Credit Corporation	375,000	375,000	- -
Farm Security Administration:			
Payments in lieu of taxes and for opera- tion and maintenance of resettlement projects	2,250,000	2,000,000	- 250,000
State Rural Rehabilitation Corporation funds	2,150,000	1,925,000	- 225,000
Miscellaneous contributed funds	63,000	89,000	+ 26,000
Total, trust funds	6,227,850	5,844,800	- 383,050

OFFICE OF THE SECRETARY

(a) SALARIES, OFFICE OF THE SECRETARY

Appropriation Act, 1941	\$597,620
Transfers 1941, pursuant to Reorganization Plan No. IV, to the:	
Federal Security Agency (incident to transfer of the Food and Drug Administration)	- 10,935
Department of Commerce (incident to transfer of the Weather Bureau)	- 5,671
Department of the Interior (incident to transfer of soil conservation operations on lands under the jurisdiction of Interior)	- 3,000
Transferred in 1942 Estimates, with corresponding reduc- tions in the estimates for:	
"Salaries and expenses, Farm Credit Administration" ..	+14,340
"Salaries and expenses, Soil Conservation Service, soil and moisture conservation and land-use operations, demonstrations, and information"	+11,400
"Salaries and expenses, Bureau of Animal Industry, eradicating tuberculosis and Bang's disease"	+6,860
Transferred in 1942 Estimates to the Public Buildings Administration (for guarding rented buildings)	- 5,000
Total available, 1941	605,614
Budget estimate, 1942	609,424
Increase	<u>3,810</u>

PROJECT STATEMENT

Projects	1940	1941 (Estimated)	1942 (Estimated)	Increase or decrease
1. <u>General administration</u> (including offices of the Secretary, Under Secretary, and Assistant Secretary)	\$75,718	\$76,810	\$84,810	+ \$8,000(1)
2. <u>Personnel administration and service</u> (including divisions of classification, employment, training, organization and management, investigations, and personnel relations)	135,239	154,000	154,000	-----
3. <u>Budget and finance administration and service</u> (including divisions of accounts, estimates and allotments, fiscal management, purchase, sales and traffic, and bureau accounting service)	196,068	189,328	185,138	- 4,190(2)

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PROJECT STATEMENT (Continued)

Projects	1940	1941 (Estimated)	1942 (Estimated)	Increase or decrease
4. General operations (including divisions of communications, real estate, administrative services, motor transport, and technical advisory board)	\$132,516	\$118,116	\$118,116	-----
5. Land-use coordination (departmental administrative coordination of all land-use surveys, planning, policies, and programs, including soil conservation, erosion control, rural rehabilitation, flood control, land utilization and purchase, submarginal land, water facilities in the arid and semi-arid states, and related programs) ..	59,602	67,360	67,360	-----
Unobligated balance	4,400	----	-----	-----
Total	603,543	605,614	609,424	+\$3,810

INCREASES AND DECREASES

The net increase of \$3,810 in this item for 1942 consists of:

- (1) An increase of \$8,000 for "General Administration" to provide for the salary of an officer, as provided under the Schwellenbach Act, to whom may be delegated regulatory functions which the Secretary is required by law to perform.

Statutes governing the activities of the Department require the Secretary to exercise regulatory powers. In the exercise of these powers it is frequently necessary to resort to quasi-judicial proceedings wherein representatives of the bureaus of the Department participate in "adversary" capacities in opposition to representatives of industries involved. Because of the volume of work to be performed, the Secretary has been forced, in making his decisions, to rely largely upon the recommendations of officials in the various bureaus who may or may not have participated in the hearings. This has resulted in the alleged failure to properly segregate "adjudicative" personnel from "prosecutors". As a result of this criticism, Congress passed the Schwellenbach Act (Public No. 446, 76th Congress).

The above Act provides for the delegation of this regulatory function by the Secretary to not more than two assistants with grades not lower than

Introduction

The following information was obtained from the records of the Department of the Interior, Bureau of Land Management, for the year 1964.

The total area of land owned by the Federal Government in the State of California is approximately 10,000,000 acres. This land is managed by the Bureau of Land Management, which is a part of the Department of the Interior. The Bureau is responsible for the management and disposal of this land, and for the protection of the public interest in the land.

The following information was obtained from the records of the Department of the Interior, Bureau of Land Management, for the year 1964.

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Summary

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grade 7 of the professional and scientific service or grade 14 of the clerical, administrative and fiscal service. The present organization of the Department does not provide for positions where these additional duties could be added to those already performed by an individual. It will, therefore, be necessary that the Secretary employ an assistant to perform these functions.

The work to be performed and the decisions to be made in connection with these functions are highly controversial and extremely complex, requiring an exceptionally high caliber man to whom these responsibilities could be delegated. \$8,000 will be needed to provide for the salary of such an officer and \$400 additional is being requested under the appropriation, "Miscellaneous Expenses, Department of Agriculture" to provide for the supplies, equipment, and travel expenses.

(2) A decrease of \$4,190 for "Budget and Finance administration and service" as follows:

This decrease is based on the assumption that the Transportation Act of 1940 will make it unnecessary to consider land-grant deductions in the awarding of contracts for supplies and equipment. This, in turn, will eliminate the existing requirement for the solicitation of bids on a dual delivery basis (i.e., f.o.b. factory and delivered at destination) and consequently should reduce the cost of processing the bids submitted. However, the determination of the elimination or continuation of the land-grant deduction privilege will not be made by any official of the Federal Government. The Transportation Act of 1940 provides that the Government will surrender the privilege, in the event that the grant-aided railroads release all claims against the Government, of lands, interest in lands, etc. While it has been assumed that the carriers will follow this plan, there is no positive assurance that the idea will be adopted by all railroads, and it is possible that failure to obtain universal acceptance will continue to some lesser degree the procurement problems now produced by the ability of the Government to transport materials at rates below the published tariffs. As the legislation requires the filing of releases within one year from the date of enactment, the exact situation may not be developed until September 1941.

QUARTERS, HEAT, AND LIGHT ALLOWANCE AUTHORIZATION FOR 1942.

No change is recommended in the amount of the proviso contained in the appropriation for "Salaries, Office of the Secretary" which limits the total that may be paid from the several bureau appropriations applicable as allowances to officers and employees of the Department of Agriculture permanently stationed in foreign countries for living quarters, including heat, fuel and light, under the provisions of the Act of June 26, 1930 (5 U.S.C. 118a).

The estimated allocations to the bureaus involved for the fiscal years 1940, 1941, and 1942, are as follows:

	<u>Actual,</u> <u>F.Y. 1940</u>	<u>Estimated,</u> <u>F.Y. 1941</u>	<u>Estimated,</u> <u>F.Y. 1942</u>
Bureau of Animal Industry	\$467	-----	-----
Bureau of Entomology and Plant Quarantine	7,220	\$8,400	\$8,400
Office of Foreign Agricultural Relations	1,766	-----	-----
Departmental reserve authority for contingencies	<u>15,547</u>	<u>16,600</u>	<u>16,600</u>
Total	25,000	25,000	25,000

Because of emergency conditions existing in Europe and elsewhere throughout the world, it may not be necessary to utilize the total amount of this authorization during 1942. The estimate for 1942 is based on continuation of reserve authority in the same sum as at present, in order that the Department may be enabled to meet whatever situation may arise in 1942.

A detailed schedule of the allowance amounts for 1940, and the present estimates for 1941 and 1942, follows:

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Appropriation and subappropriation	Title of position	Post of duty	Classification of post	Domestic status	Group	Salary	Allowances	
							Estimated 1942	Actual, 1940
Bureau of Entomology and Plant Quarantine:								
Salaries and expenses:								
Fruit Insects								
	Prin. Entomologist	Mexico City, Mexico	IV	II	2	\$6,000	\$720	\$720
	Senior Entomologist	" "	IV	II	3	4,500	720	720
	Assoc. Entomologist	" "	IV	"	3	3,200	720	720
	Associate Chemist	" "	IV	"	3	3,200	720	720
	Junior Entomologist	" "	IV	II	3	2,000	720	630
	Asst. Entomologist	Hacienda Santa Engracia, Mexico	II	II	3	2,500	660	660
	Senior Entomologist	Montevideo, Uruguay	IV	II	2	4,500	1,200	450
	Assoc. Entomologist	" "	IV	"	3	3,200	1,020	340
	" "	Yokohama, Japan	IV	S	2	3,200	1,020	1,020
	Asst. Entomologist	" "	IV	S	3	2,500	900	900
	Assoc. Entomologist	St. Cloud, France	V	II	3	3,300	---	340
Total, Bureau of Entomology and Plant Quarantine							5,400	7,220
Office of Foreign Agricultural Relations:								
Salaries and expenses ..								
	Principal Marketing Specialist	London, England	V	II	2	6,000	---	135
	" "	" "	V	II	2	6,000	---	400
	" "	Manchester, England	IV	II	2	6,000	---	375
	Senior Marketing Specialist	Paris, France	V	II	2	3,500	---	405
	Technical Assistant	Berlin, Germany	V	S	4	2,000	---	450
Total, Office of Foreign Agricultural Relations							---	1,765
Bureau of Animal Industry:								
Salaries and expenses:								
Inspection and Quarantine								
	Senior Veterinarian	London, England	V	II	2	4,600	---	467
Grand Total							5,400	9,453

WORK UNDER THIS APPROPRIATION

General. The work under this appropriation is concerned with the administration of the national agricultural program; the formulation of broad agricultural policies; the development of administrative policies for the Department, and the integration of Department activities. The Secretary carries out these responsibilities with the assistance of staff officers whose work is divided among the five groups described below. This organization is financed by the appropriations "Salaries, Office of the Secretary" and "Miscellaneous Expenses, Department of Agriculture", together with allotments from other applicable funds for the work of the Department as shown in the Budget.

Project 1. General Administration:

Objective: To administer Federal agricultural statutes; to serve as liaison with other Government departments on agricultural policy; to exercise general supervision and control over the Department as a whole; and to formulate, establish and carry out general policies affecting agriculture in its broadest sense.

The Problem and its Significance: In the depression that followed the crisis of 1929, national problems that had been growing and brewing for a long time all seemed to arrive at once. The closing of the frontier, the rise of nationalism throughout the world, the opening of new lands in other countries, the loss of our foreign markets, the advance of machine agriculture, the ruthless waste of resources over a long period of expansion and exploitation, and the loss of opportunities in cities for the surplus population that formerly flowed away from the land -- all these factors coincided and called for the formation of new land and agricultural policies for the United States. Much of the responsibility fell necessarily on the Federal agricultural agency.

Congress directed the Department to develop many new agencies and to expand and give new duties to some of the older ones. New laws required the Department, in cooperation with farmers, to take an increased part itself in the practical application of research findings. Its research workers could no longer be specialists exclusively. They had to think of the whole job, as well as of their own detail, and to help also in administrative work. Up to that time the institution had been a well-organized efficient branch of the Government, entirely capable of doing the jobs assigned to it. It could continue as such, and could handle its new jobs, only by making important administrative changes. The bureaus could not themselves coordinate their work into balanced, comprehensive, action programs. There was need for administrative unity. Various changes brought related functions together and geared them to action through program planning. The result was practically a new Department of Agriculture.

In the new Department of Agriculture, the Secretary and his immediate staff, consisting of the Under Secretary, Assistant Secretary,

and other aides, are assisted by staff officers who are responsible for various phases of administrative coordination and management. The Secretary's immediate staff represents him in many direct dealings with the heads of operating agencies, and, as liaison with other departments, they speak for the Secretary in assuming and discharging responsibility for the Department's activities. They advise the Secretary regarding the economic significance of proposed policies and legislation. Upon request, they supply Members of Congress with information regarding pending legislation.

Plan and Progress of Work: The Secretary of Agriculture and his immediate staff adhere to the basic principle that policy making should be centralized and operation decentralized. Reshaped according to this principle, the new Department has rapidly made its facilities a part of the total defense effort, while at the same time continuing to work throughout the country for the basic agricultural objectives of stability of income, conservation of resources, and security of tenure for those who work the land.

In line with his responsibility for the agricultural policies of the administration, the Secretary has advised Congress extensively on pending legislation and has presented the Department's requests for appropriations to the Congress. He has kept the President advised on the agricultural situation. He has reorganized the Department and strengthened the administration of the national agricultural program. He has dealt directly with agricultural groups. He has given much attention to departmental management in the fields of personnel, budget and finance, action-program coordination, and the coordination of research, regulatory, educational, and service activities. In this, as previously stated, the Secretary is assisted by an immediate staff and by several staff offices in specialized fields of administration.

Project 2. Personnel Administration and Service:

Objective: To coordinate and exercise general supervision over the personnel activities of the Department.

The Problem and its Significance: Numerous and substantial responsibilities are vested by law in the Secretary covering the selection, classification, department, discipline and management of personnel in the Department. In the compilation of laws applicable to the Department embracing acts and provisions of a permanent character in force September 6, 1935, nearly one-seventh of such laws relate to subjects usually included under the general heading of personnel administration. In addition the Secretary is responsible for the administration of Civil Service rules and regulations governing recruitment, promotion, separation and similar actions relating to the personnel work of the Department. Further, there must be administered the provisions of Executive Orders, budgetary regulations, decisions of the Comptroller General, and the many laws which have become effective since 1935. In order to carry out these responsibilities effectively and efficiently, the Secretary has delegated many of these functions to the Director of

Personnel who is responsible for coordinating personnel administration and exercising certain responsibilities in behalf of the Secretary.

In the interest of good management consistent with the spirit of fair dealing with employees which characterizes the Federal Government's policy as laid down by the Congress, it is essential that there be assurance that employees are properly qualified before they are added to the payroll; that there be equal pay for equal work through correct classification and salary administration; that promotions be made on the basis of merit; that supervisors be trained to insure efficient work by their subordinates; that irregularities and misconduct of any kind be properly investigated, the facts clearly established and prompt disciplinary action taken; that prompt assistance be provided agencies of the Department in transacting business with the Civil Service Commission and other agencies on personnel matters; that emergency first-aid service be provided for employees who are injured or who become ill during the working day; that complaints and grievances of any kind be given courteous consideration; that matters of significance pertaining to the morale of the Department's staff of workers be given continuous and painstaking attention; that adequate personnel records be maintained; and that standards of performance be established and maintained so that the Government's interest as an employer will be at all times adequately safeguarded.

Plan and Progress of Work: The Office of Personnel is headed by a Director and an Assistant Director; it has six divisions staffed with specialists in classification and salary administration, organization, recruitment, placement, training, employee relations, safety, investigational work, discipline, and other similar fields. It assists and advises the Secretary on personnel matters and issues, through the delegation of authority, rules covering policies and procedures relating to the management of personnel and the execution of personnel transactions. On behalf of the Secretary the Office of Personnel discharges the Secretary's responsibilities under the Classification Act of 1923, as amended and conducts the Department's business with the Civil Service Commission; investigates at the request of the bureaus and the direction of the Secretary, cases involving possible irregularities, delinquencies and misconduct; maintains personnel records and renders advisory service to the bureaus and offices of the Department regarding all phases of personnel management.

The number of employees of the Department has increased greatly and the personnel management responsibilities of the Secretary have increased proportionately. Progress has been made through improved classification and organization; through the establishment of a system of appeals in the case of grievances; through the decentralization of responsibility covering many types of personnel actions; through stimulating improved supervision; and through better employment techniques.

Project 3. Budget and Finance Administration and Service:

Objective: To exercise general supervision of the budget, fiscal, accounting, purchasing, and related work of the Department.

The Problem and its Significance: This work involves general supervision of the acquisition, allotment, expenditure, audit, and accounting of funds at the disposal of the Department, the initiation, review and approval of systems, methods and procedures pertaining to the budgetary and fiscal affairs of the Department, the management and control of procurement procedures, etc. The safeguarding of public funds, both from the standpoint of economy and effectiveness of operation and the prevention or elimination of undesirable or irregular practices, is an essential factor in the departmental management and operation. The accounting, fiscal, and procurement procedures must be the subject of constant study and modification in order that they may properly and adequately meet the needs of the very complex programs which the various bureaus are called upon to administer.

Plan and Progress of Work: The Office of Budget and Finance prepares, in cooperation with the bureaus, the annual budget for the Department; prepares reports of appropriations and expenditures; consults and advises with bureaus on fiscal matters; devises and recommends fiscal management procedures; maintains appropriation control, records of transferred and allotted funds, and related accounts for the Department as a whole; maintains the uniform project system covering the work of the Department; operates an accounting service for certain of the units which do not maintain their own accounting offices; supervises and coordinates activities of the Department involved in the purchase or sale of materials and supplies, etc. This office also is responsible for the conduct of the business of the Department with the Bureau of the Budget, General Accounting Office, Treasury Department, both Houses of Congress, and other agencies of the Government when budgetary, fiscal, and related matters are involved. Current projects include a program for the improvement of the budgetary administration and control, the regular examination of the accounting operations of the several bureau accounting offices, the review and amendment of the various Department Regulations governing fiscal activities, the development of more effective procurement processes, etc.

Project 4. General Operations:

Objective:

- (a) The adequate, efficient, and economical housing of the Department's activities.
- (b) Development of departmental policies in connection with the selection and operation of various types of mechanical, aerial, scientific, and other equipment and services where engineering principles are involved.
- (c) Standardization and efficient operation of the departmental communication systems.
- (d) Administration of the business functions of the Office of the Secretary.
- (e) Comprehensive and orderly development of the Beltsville Research Center and effective performance of necessary operating services incident thereto.

- (f) Efficient operation of the Department's maintenance garage and motor transport system in the District of Columbia.

The Problem and its Significance:

- (a) The Department of Agriculture is an organization composed of 25 bureaus engaged in the administration of an agricultural program which reaches into every community in the United States. The extensive range of the Department's activities, the adequacy of space, its proper utilization, and the effective control of methods of its procurement and use create a problem, the solution of which is vital to the proper functioning of the Department. Exercising leadership and direction in this field will result in significant economies.
- (b) Mechanical, scientific and photogrammetric equipment in all categories is essential to the furtherance of programs of the Department. Many of these programs employ techniques in common, and in order that the selection and use of such equipment may be handled most economically and efficiently, it becomes necessary to coordinate and correlate its selection, use, operation, and maintenance.
- (c) The filing methods and procedures of the Department are not standardized, but by the development of uniform methods and procedures in the handling of the record problem, savings can be accomplished in the matter of space occupied and the procurement of file supplies and equipment, as well as eventually reducing the number of personnel required for processing the records. With the rapid growth of the Department, the telephone, telegraph, records, and internal mail operations have become an ever increasing problem.
- (d) In the administration of the Secretary's Office it is necessary that a control be exercised over personnel and budgetary matters and that provision be made for service functions such as the procurement of supplies and equipment, the furnishing of information to visitors, the maintenance of inventory, leave, and other records and related business activity.
- (e) Since the experimental and research work conducted by the various bureaus of the Department at the Beltsville Research Center occupy buildings and grounds covering approximately 12,000 acres, it is essential that a centralized service organization be properly managed, in order that the necessary utilities and related services be readily and economically available to the research agencies. A more detailed discussion of the significance of this problem is given under the appropriation, "Beltsville Research Center."
- (f) In the conduct of operations in the District of Columbia, the Department has found it necessary to maintain a number of trucks for hauling within the District and has also found it necessary to maintain a garage to service these trucks and motor vehicles of the various bureaus when they happen to be in Washington on official business.

Plan and Progress of Work:

- (a) The Office of Plant and Operations employs a nucleus staff which plans and administers methods for the solution of the space and

the first of these is the fact that the system is not self-sufficient. It is dependent on the outside world for many of its needs, and this is a serious weakness.

THE SECOND PRINCIPLE OF THE SYSTEM

The second principle of the system is that it is based on the idea of the "unit of production." This unit is defined as the smallest amount of material which can be produced by the system. It is the basic unit of measurement for the system, and it is used to determine the efficiency of the system.

The third principle of the system is that it is based on the idea of the "unit of consumption." This unit is defined as the smallest amount of material which can be consumed by the system.

The fourth principle of the system is that it is based on the idea of the "unit of distribution." This unit is defined as the smallest amount of material which can be distributed by the system.

The fifth principle of the system is that it is based on the idea of the "unit of storage." This unit is defined as the smallest amount of material which can be stored by the system. The sixth principle of the system is that it is based on the idea of the "unit of transport." This unit is defined as the smallest amount of material which can be transported by the system.

The seventh principle of the system is that it is based on the idea of the "unit of processing." This unit is defined as the smallest amount of material which can be processed by the system. The eighth principle of the system is that it is based on the idea of the "unit of assembly." This unit is defined as the smallest amount of material which can be assembled by the system.

The ninth principle of the system is that it is based on the idea of the "unit of packaging." This unit is defined as the smallest amount of material which can be packaged by the system. The tenth principle of the system is that it is based on the idea of the "unit of distribution." This unit is defined as the smallest amount of material which can be distributed by the system.

The eleventh principle of the system is that it is based on the idea of the "unit of storage." This unit is defined as the smallest amount of material which can be stored by the system. The twelfth principle of the system is that it is based on the idea of the "unit of transport." This unit is defined as the smallest amount of material which can be transported by the system.

THE THIRD PRINCIPLE OF THE SYSTEM

The third principle of the system is that it is based on the idea of the "unit of production." This unit is defined as the smallest amount of material which can be produced by the system.

housing problems of the Department. Standard criteria, for the guidance of the several bureaus, are developed in coordination with the Office of Planning and Space Control of the Federal Works Agency. Handbooks are being prepared for use of the field representatives of the Department concerning methods of space procurement, adequate competition, space layouts, proper ventilation and lighting, and other facilities necessary to efficient operation. Space reductions and better functional arrangements of space have been accomplished by the planned use of scale drawings and templates even to the extent of absorbing a budget reduction in the "Rent of Buildings" appropriation for 1941 and recommending a decrease in rent for 1942. Studies will be made of the possible consolidation of housing of agricultural activities on a regional, State and county basis. Progress is also being made in the consolidated housing of agricultural activities in county owned agriculture buildings, thereby providing a better coordinated presentation of the Department's program to the farmers in the county.

- (b) The technical Advisory Board, composed of three members with technical training and experience, is engaged in the development of efficient and economical methods of handling those equipment problems which involve the application of engineering principles. Standard specifications are prepared which assure the selection of equipment best suited for the conduct of the work. In the interest of economy and to reduce existing duplications, as well as to further the application of a system of preventative maintenance, a program of consolidating automotive repair shop activities in central locations throughout the field has been developed. Progress in this direction has resulted in the designation of eight consolidated departmental repair depots and the development of standardized procedure for their conduct and control. Through the use of departmental standard specifications, competition has been placed more nearly on a common ground, which contributes to the securing of equipment with substantial savings to the operating bureaus. Improved technology has promoted efficiency which, in turn, has produced savings that are none the less real even though intangible.
- (c) The Communications Division is responsible for the maintenance and operation of the telephone, telegraph, mail and files systems of the Department. So many requests have been made by the various bureaus for assistance in surveying their communications system and making recommendations for the improvement thereof that it has been impossible to satisfy the demands with the small force available. These surveys usually disclose the fact that unnecessary copies are being made, duplicate files are being maintained, and that processing documents prior to insertion in the files has been slow. Offices have been reorganized from the space lay-out standpoint for more efficient operation. Standard forms of standard size have been developed for the use in all record units in the Department. In one instance, twenty-two different forms in use throughout the Department were standardized into one form. The centralization of records in a bureau tends

toward more efficient operation of employees who are actually processing various documents. An In-Service Training School, attended by approximately 125 employees, was conducted to acquaint mail and files employees of the Department with new practices and procedures for the performance of that work. In the telegraph office, all Morse key equipment is being eliminated and automatic page printers installed to facilitate the handling of the business of the Department. Telephone service has been improved through the consolidation of facilities with resultant economies.

- (d) The Administrative Services Division operates as the business management organization for the Office of the Secretary. Its functions involve the preparation of budget estimates and justifications, budgetary control of appropriations, the performance of all actions incident to personnel management and control, the processing of requisitions for supplies, equipment, and services, the furnishing of information service to visitors to the Department, as well as the maintenance of pertinent records. New systems for the maintenance of personnel and budgetary control have been devised and installed with a resultant increase in efficiency and improvement of the services rendered.
- (e) At the Beltsville Research Center a central management organization responsible to the Office of Plant and Operations furnishes utility services, fire protection and related services to the research agencies. It also performs mechanical and farming work for them on a reimbursable basis. In the management and operation of the above services, which are vital to the experimental work at the Center, the central management organization has found itself hampered because of a lack of sufficient funds to effectively and efficiently perform these functions. A more detailed discussion of this activity is included under the appropriation heading, "Beltsville Research Center."
- (f) The Department operates a Motor Transport Division which furnishes trucking and hauling services to the various bureaus of the Department in Washington and repairs Department-owned automotive equipment on a reimbursable basis.

Project 5. Land-Use Coordination:

Objective: To direct the administrative coordination of land and water policy, program, and survey activities as they relate to the work of the Department as a whole; to represent the Department on interdepartmental councils dealing with related Federal activities; to work directly with other Federal and State administrative agencies in coordinating land and water-use programs, and to serve as executive staff of the Agricultural Program Board.

The Problem and its Significance: There is no practical way in which the Department could be organized to achieve broad land use objectives that would not require interbureau coordination. Definite responsibilities have been assigned to each bureau of the Department, but these responsibilities cannot be exercised independently of the work managed by other bureaus. Likewise, coordination is required with land use programs of other Departments.

On July 12, 1937, the Secretary of Agriculture announced that the land-use planning, program, policy, and survey activities of the Department were to be brought into closer harmony through systematic methods of coordination handled in the immediate office of the Secretary. This action, creating the Office of Land Use Coordination, was taken upon recommendation of the heads of all branches of the Department concerned with land-use activities.

Plan and Progress of Work: The organization and procedures of the Department now are such that coordination begins with fact finding. Procedures are provided for agreeing on the interpretation of facts. A mechanism is being created to prepare integrated plans at local, State, and national levels, and the administrative organization is shaped to carry out the plans with the least possible friction between related lines of work.

The Office of Land Use Coordination acts for the Secretary of Agriculture in the councils in which coordination is achieved between the land-use policies and programs of the Department and the policies and programs of other Federal departments and agencies, principally through the National Resources Planning Board. The staff members of the Office carry on active cooperation with other departments on specific programs. In this category are the relationships with the War Department under the Flood Control Act of 1936 and those with the Department of Interior under the Wheeler-Case Act and, to a lesser extent, under the Water Facilities Act. The Office has primary responsibility for the Department's relationships with the National Resources Planning Board under Executive Order 8455 which provides for advance programming of public works.

Present procedure provides also for Office review of all Department aerial photography projects before they are contracted. The Office works with the Bureau of the Budget which is coordinating all Federal mapping activities, and with the Map Information Office of the Federal Board of Surveys and Maps.

The influence of credit on land use calls for coordination of the policies of the Farm Credit Administration and the Farm Security Administration with those of other land use agencies of the Department.

A system of advance clearance on land purchase proposals put forward by the Forest Service, Soil Conservation Service and other agencies of the Department has been established, and procedures have been established for the Department's agencies which render soil conservation districts assistance.

The Norris-Doxey Farm Forestry Act, related activities under the older Clarke-McNary legislation, work under the Flood Control Acts, the Pope-Jones Water Facilities Act are administered jointly by two or more bureaus of the Department. Coordination of this work is one of the tasks of the Office.

The formulation of water policies cuts across the activities under several land use programs. Continued attention to water resources

and their development is a major responsibility of the Office. The Pope-Jones Water Facilities Act of 1937 and the Wheeler-Case Act of 1939 authorize the Department to assist farm families in utilizing undeveloped water resources.

The Office carries on continuous study of organization in the land use agencies and of the Department and makes recommendations to the Secretary for organization improvements when these appear to be in the interest of better administration of the land use programs.

The Office of Land Use Coordination has two field offices, one at Amarillo, Texas, and one at Lincoln, Nebraska. These offices carry on the field integration of the action programs with a view to adapting national policies and Departmental procedures to the special needs of the High Plains.

(b) MISCELLANEOUS EXPENSES, DEPARTMENT OF AGRICULTURE

Appropriation Act, 1941	\$105,000
Transferred 1941, pursuant to Reorganization Plan No. IV, to:	
"Salaries and expenses, Transferred from Agriculture, Office of the Administrator, Federal Security Agency"....	-841
"Salaries and expenses, Transferred from Agriculture, Office of the Secretary of Commerce, Weather Bureau".....	-418
"United States Official Mail and Messenger Service, Post Office Department (General Fund)".....	-4,300
Total available, 1941.....	98,941
Budget estimate, 1942.....	99,341
Increase.....	+400

PROJECT STATEMENT

Project	1940	1941 (Estimated)	1942 (Estimated)	Increase
Miscellaneous Expenses, Department of Agriculture.....	\$100,216	\$98,941	\$99,341	+\$400 (1)
Unobligated balance.....	7,534	---	---	---
Total appropriation.....	107,750	98,941	99,341	+400

INCREASE

(1) An increase of \$400 is requested to enable the Secretary to apply the provisions of the Schwellenbach Act of April 4, 1940, as explained in detail under the appropriation item "Salaries, Office of the Secretary."

WORK UNDER THIS APPROPRIATION

Objective: This appropriation, together with funds allotted from other applicable appropriations for the work of the Department, as shown in the Budget, provides for miscellaneous supplies, equipment, travel, and other operating expenses of the Office of the Secretary, and for the compensation of the personnel in the Motor Transport and Central Supply Sections whose salaries are eventually paid by various bureaus of the Department through reimbursements for services rendered.

The Problem and its Significance: In the conduct of the work of the Office of the Secretary, provision must be made for the purchase of supplies and equipment, for travel, and for other miscellaneous expenses. The Department must maintain a Central Supply Section which furnishes office supplies to all bureaus of the Department. There must also be maintained a garage to service and repair motor vehicles of the Department. This garage must also furnish trucking and hauling services within the District of Columbia. In accordance with provisions of law, salaries for these two activities are paid from the "Miscellaneous Expenses" appropriation, and the appropriation reimbursed by the bureaus for whom service is performed.

Plan and Progress of Work: The Office of the Secretary pays for the supplies and materials necessary for its operations from this fund. It also is used to cover the cost of communications, postage, freight, express, laundry, repairs and alterations, travel expenses, and the maintenance of motor vehicles. The employees of the Motor Transport Division are paid from this fund as well as those employees in the Central Supply Section who are engaged in the procurement, storage, issue and shipment of supplies and materials for the several bureaus of the Department.

(c) RENT OF BUILDINGS IN THE DISTRICT OF COLUMBIA

Appropriation Act, 1941	\$165,502
Transferred 1941, pursuant to Reorganization	
Plan No. IV to "Rent of Buildings, Department of Commerce, Weather Bureau"	- 16,030
Transferred in 1942 Estimates to the Public	
Buildings Administration	-149,472
Total available, 1941	-----
Budget estimate, 1942	-----

Note.--This appropriation is omitted from the Department of Agriculture estimates in its entirety and the funds transferred to and consolidated with the appropriation "Salaries and Expenses, Public Buildings and Grounds in the District of Columbia, Public Buildings Administration." Similar action is proposed in the Budget with respect to rent items paid from other funds of the Department. Under this plan rent would be paid from the funds of the Public Buildings Administration.

The following statements show the buildings and parts of buildings in Washington leased under this appropriation and under other funds of the Department.

Appropriation: "Rent of Buildings in the District of Columbia"

Statement Showing Rentals, Fiscal Years 1941 and 1940

Building and Location	Bureau Occupying Space	Estimated,	Actual,
		F.Y. 1941	F.Y. 1940
Standard Oil (201 Constitution Ave. N.W.)	Soil Conservation Service.....	\$75,718	\$70,072
Printerart (930 H St. N.W.).....	Soil Conservation Service.....	20,360	20,560
Columbian (426 5th St. N.W.).....	Soil Conservation Service and Forest Service.....	17,321	17,321
Victor (724 9th St. N.W.).....	Forest Service.....	14,490	14,490
913-915 G Place, N.W.).....	Soil Conservation Service.....	1,662	1,662
615 D Street, S.W.).....	Office of Secretariat.....	2,275	-----
McKinley (American University).....	Plant Industry.....	11,100	14,800
Atlantic (928-930 F St. N.W.).....	Forest Service.....	-----	30,000
Hamilton Nat'l Bank (1200-02 Wisconsin Ave)	Weather Bureau.....	-----	6,150
2214 M St., N.W.).....	Weather Bureau.....	-----	5,600
Stewart (6th and D Streets, N.W.).....	Soil Conservation Service.....	203	2,428
1214 24th St., N.W.).....	Weather Bureau.....	-----	1,920
2513 H St., N.W.).....	Weather Bureau.....	-----	1,000
Reserve for emergency rentals and reconditioning of rented quarters upon relinquishment.....		5,143 149,472	4,874 191,077
Add rentals not included above transferred to:			
Department of Interior pursuant to provisions of Reorganization Act of 1939 and Reorganization Plan No. II.....		-----	2,523
Department of Commerce pursuant to provisions of Reorganization Plan No. IV.....		15,030	-----
Net "Rent of Buildings" appropriation.....		165,502	193,500

Statement showing buildings and parts of buildings rented in the District of Columbia other than those estimated for under the appropriation for "Rent of Buildings in the District of Columbia"

(as of October 5, 1940)

Building and Location Bureau Occupying Space and Fund From Which Paid

		Annual Rental Rate
Courts, 310-312 6th St., N.W.	Agr'l Adjust. Admin. (Emergency Relief, W.P.A.).....	\$6,600
Lincoln Temple, 1701 11th St., N.W.	Agr'l Economics (Emergency Relief).....	600
Rizik, 1737 L Street, N. W.	Commodity Credit Corpn. (Administrative Expenses)....	15,265
Fidelity Storage, 1420 U St., N.W.	do.	494
Barr, 910 17th Street, N. W.	Farm Security Admin. (Emergency Relief; Farm Tenancy; Liquidation and Management of Resettlement Projects; Rural Rehabilitation).....	52,718
City Club, 1320 G St., N.W.	do.	43,989
501 & 513 26th Street, N.W.	do.	6,300
517 26th Street, N.W.	do.	1,300
1320 & 1330 New York Ave., N.W.	Federal Crop Insurance Corporation (Crop Insurance Act)	9,500
Columbian, 416 5th St., N.W.	Forest Service (Civilian Conservation Corps).....	600
Victor, 724 9th Street, N.W.	do.	10,633
3209 Highland Place, N.W.	Home Economics (Special Research Fund).....	1
Corona, 1018-1020 15th St., N.W.	Rural Electrification Admin. (Salaries and Expenses).	5,445
Denrike, 1010 Vermont Ave., N.W.	do.	6,090
Fidelity Storage, 1420 U St., N.W.	do.	2,053
1513 K Street, N.W.	do.	16,995
1437 K Street, N.W.	do.	15,000
Investment, 15th & K Sts., N.W.	do.	31,236
1730 L Street, N.W.	do.	3,479
1022 15th St., N.W.	do.	6,000
2000 Mass. Ave., N.W.	do.	15,000
2005 P Street, N.W.	do.	1,350
Standard Oil, 261 Constitution Ave.	Soil Conservation Service (Land Utilization & Retirement of Sub-Marginal Land).....	9,356
Stewart, 6th & D Sts., N.W.	Soil Conservation Service (Flood Control).....	1,658
1007-1009 E Street, S.W.	Surplus Marketing Admin. (Exportation & Domestic Consumption of Agricultural Commodities).....	2,939
Stewart, 1012 5th St., N.W.	do.	65,119
	(Total)	330,240

SUPPLEMENTAL FUNDS

(1) Direct Allotments

(For administrative, fiscal, accounting, personnel, investigative, and other departmental services and expenses, including coordination of land-use activities).

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
Special Research Fund	\$1,860	\$1,920	\$1,920
Conservation and Use of Agricultural Land Resources (Regional Research Laboratories).....	3,751	4,000	4,000
Salaries and Expenses, Agricultural Adjustment Administration.....	41,734	63,750	63,750
Administration of Sugar Act of 1937.....	15,056	30,000	30,000
Exportation and Domestic Consumption of Agricultural Commodities.....	46,178	68,580	68,580
Farm Tenancy, Department of Agri- culture.....	14,783	15,500	15,500
Liquidation and Management of Resettle- ment Projects.....	8,050	7,860	7,860
Land Utilization and Retirement of Sub- marginal Land.....	35,274	21,220	24,220
Administration of Federal Crop Insurance Act.....	33,282	42,500	42,500
Flood Control, General (Transfer to Agriculture).....	34,256	79,160	59,880
Development of Water Facilities, Arid and Semi-Arid Areas.....	4,401	5,000	4,750
Enforcement of Commodity Exchange Act.....	1,021	2,500	2,500
Salaries and Administrative Expenses, Commodity Credit Corporation.....	(a) 29,630	50,590	50,590
Salaries and Expenses, Rural Electrifi- cation.....	37,621	45,000	45,000
Conservation and Use of Agricultural Land Resources.....	333,624	380,425	380,425
Loans, Grants and Rural Reha- bilitation.....	148,502	173,309	173,309
Emergency Relief Act (Transfer from W.P.A.).....	20,156	11,200	(b)
Total, Supplemental Funds (direct allotments).....	809,179	992,514	964,784

(a) Allotment for 1940 covered by transfer under Reorganization Plan No. I, of \$24,630 to the appropriation "Salaries, Office of the Secretary" and \$5,000 to "Miscellaneous Expenses, Department of Agriculture."

(b) 1942 allocations not yet available.

SUPPLEMENTAL FUNDS

(2) Indirect Allotment

Project	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
Civilian Conservation Corps (Act of June 28, 1937, and supplemental Acts; indirect allotment, through War Depart- ment)	\$40,440	\$67,620	(a)

(a) 1942 allocation not yet available.

OFFICE OF THE SOLICITOR

(a) SALARIES AND EXPENSES

Appropriation Act, 1941	\$268,280
Transfers 1941, pursuant to Reorganization Plan No. IV, to:	
Department of the Interior (incident to transfer of certain activities of the Soil Conservation Service)	- 700
Federal Security Agency (incident to transfer of Flood and Drug Administration)	- 60,000
Department of Commerce (incident to transfer of Weather Bureau)	- 1,225
Transferred in 1942 Estimates from "Meat inspection, Bureau of Animal Industry", with corresponding reduction in latter appropriation (to cover salaries of employees engaged in legal work in Solicitor's Office for Bureau of Animal Industry)	+3,180
Available, 1941	209,535
Budget Estimate, 1942	<u>209,535</u>

PROJECT STATEMENT

Project	1940	1941 (Estimated)	1942 (Estimated)
Legal advice and assistance	\$208,538	\$209,535	\$209,535
Unobligated balance	139	- -	- -
Total	(b)208,677	(a)209,535	209,535

- (a) 1941 obligations include \$3,180, "Meat inspection, Bureau of Animal Industry" covering salaries of employees engaged in legal work in the Solicitor's Office for Bureau of Animal Industry, transferred in estimates for 1942 with corresponding reduction in the appropriation involved.
- (b) 1940 figure adjusted by transfers as shown in Budget schedule.

WORK UNDER THIS APPROPRIATION

Objective: The Office of the Solicitor is charged with the performance of the legal work of the Department. In brief, its duties consist of advising the Secretary and other administrative officials on legal problems in connection with all phases of their duties, pursuant to and in compliance with a statute providing that "the legal work of the Department of Agriculture shall be performed under the supervision and direction of the Solicitor" (5 U.S.C. 518).

Significance: The Department of Agriculture has been made responsible by Congress for the administration and enforcement of more than 60 major statutes, including 34 regulatory laws, and for the administration of large areas of national-forest lands and other property. Naturally, many and varied legal problems arise in the conduct of the activities of the Department, and these problems make it necessary that the administrative officers of the Department have legal advice and assistance. Violations of the regulatory statutes administered by the Department are frequent and aggregate several thousand during the course of the year. In addition to these violations of regulatory statutes, there are hundreds of complainants seeking reparation under the provisions of the Perishable Agricultural Commodities Act and the Packers and Stockyards Act. Proper disposition of these various matters requires the consideration and application of practically all branches of the law.

Plan and Progress of Work: The Office of the Solicitor renders to the Secretary and to other officials of the Department legal opinions construing and applying statutes, Executive orders, and administrative rules and regulations; assists in the preparation of proposed legislative bills, administrative rules and regulations, orders, and proclamations; drafts, examines, and construes contracts, deeds, mortgages, leases, and other documents; approves the organization of cooperative associations, soil-conservation districts, and similar agencies and their eligibility for participation in departmental programs; examines evidence to determine whether there have been violations of acts administered by the Department and, in proper cases, recommends prosecution to the Attorney General; prepares pleadings and briefs in civil and criminal cases involving the Department and the laws administered by it and cooperates with the Department of Justice in the handling of such litigation in the lower and appellate courts; represents the Department as counsel in hearings before the Secretary; handles the contacts of the Department with other governmental agencies, State and Federal, in legal matters; conducts administrative hearings and issues tentative findings, conclusions, and orders with respect thereto, under various acts administered by the Department; prosecutes applications for patents by Department employees where the subject of the patent is used in departmental work; examines titles to land authorized for purchase or on which loans will be made by the Department; considers and recommends appropriate disposal of claims for damage to property of the United States in the custody of the Department and claims against the Government for damage arising from operations of the Department.

The foregoing work included, among other things, for the fiscal year 1940 the following specific items: Over 1050 formal opinions; preparation of 1507 contracts, 3801 leases, and 84 highway agreements; the handling of over 100 suits brought against the United States; the preparation of 1333 bills, complaints, informations, protests, etc., affecting the national forests; the handling of 146 claims to land in the national forests and 592 cases of trespass upon the national forests; the prosecution of 596 cases under the regulatory laws administered by the Department, of which 377 received final disposition; reviewing and rendering opinions on 745 claims against the United States for damage to private property; prosecution of 215 claims for damage to property of the United States;

prosecution of 231 patent applications, 4 patent interference cases, and 2 appeals, as well as handling 56 other patent applications; and reviewing 64 cases of misconduct.

SUPPLEMENTAL FUNDS

(1) Direct Allotments

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Salaries and Expenses, Agricultural Adjustment Administration:</u> Legal services in connection with the marketing agreement program. .	\$136,118	\$135,620	\$135,620
<u>Exportation and Domestic Consumption of Agricultural Commodities:</u> Legal services in connection with the administration of Section 32 of the Act of August 24, 1935, and related appropriations for removal of surplus agricultural commodities. .	50,225	109,606	109,606
<u>Conservation and Use of Agricultural Land Resources:</u>			
Legal services in connection with the agricultural conservation program of the Agricultural Adjustment Administration	102,518	94,312	94,312
Legal services in connection with the adjustment in freight rates for farm products	9,964	15,540	15,540
<u>Price Adjustment Act of 1938:</u>			
Legal services in connection with the administration of the Price Adjustment Act of 1938	9,455	- - -	- - -

SUPPLEMENTAL FUNDS - Continued.

(1) Direct Allotments - Continued.

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Parity Payments:</u> Legal services in connection with the administration of the Parity Payments program	- - -	\$23,577	\$23,577
<u>Administration of the Sugar Act of 1937:</u> Legal services in connection with the administration of the Sugar Act of 1937	\$37,419	40,991	40,991
<u>Administration of Federal Crop Insurance Act:</u> Legal services in connection with the administration of the Federal Crop Insurance Act	45,215	45,922	45,922
<u>Acquisition of Lands for Protection of Watersheds of Navigable Streams (Working Fund):</u> Legal services in connection with the acquisition of lands for protection of watersheds of navigable streams	115,499	60,000	80,000
<u>Land Utilization and Retirement of Submarginal Land:</u> Legal services in connection with the land utilization and retirement of submarginal land program .	244,625	182,536	133,500
<u>Administrative Expenses, Farm Tenancy:</u> Legal services in connection with the administration of Title I of the Farm Tenant Act	126,863	200,000	200,000

SUPPLEMENTAL FUNDS - Continued.

(1) Direct Allotments - Continued.

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Liquidation and Management of Resettlement Projects:</u> Legal services in connection with section 43 (Title IV) of the Farm Tenant Act relating to resettlement projects and rural rehabilitation projects for resettlement purposes	\$63,974	\$56,250	\$56,250
<u>Loans, Grants and Rural Rehabilitation:</u> Legal services in connection with the Farm Security Administration programs. .	341,769	359,135	359,135
<u>Salaries and Expenses, Soil Conservation Service (Soil and Moisture Conservation and Land-Use Operations, Demonstrations, and In- formation):</u> Legal services in connection with administration of the soil-erosion program	35,362	36,150	36,150
<u>Flood Control, General</u> (Transfer from War Department): Legal services in connection with the flood-control program of the Department of Agriculture; Preliminary examinations and surveys	5,820	13,642	9,095
<u>Administrative Expenses, Com- modity Credit Corporation:</u> Legal services in connection with the administration of the Commodity Credit Corporation	18,000	39,799	39,799
Total, Supplemental Funds (Direct Allotments)	1,342,886	1,419,080	1,379,497

SUPPLEMENTAL FUNDS - Continued.

(2) Indirect Allotments

(Financed through other Government agencies)

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Civilian Conservation Corps</u> <u>(Act of June 28, 1937, and</u> <u>supplemental acts allotment</u> <u>through War Department):</u> Legal services in connection with claims resulting from Civilian Conservation Corps activities	\$18,388	\$20,300	\$20,300

OFFICE OF INFORMATION

(a) SALARIES AND EXPENSES

Appropriation Act, 1941	\$350,000
Transferred 1941, pursuant to Reorganization Plan No. IV, to:	
Department of Commerce	- 1,944
Department of the Interior	- 800
Federal Security Agency	- 2,273
Post Office Department	- 100
Total available, 1941	<u>344,883</u>
Budget Estimate, 1942	<u>344,883</u>

PROJECT STATEMENT

Projects	1940	1941 (Estimated)	1942 (Estimated)
1. General administration of Office of Information and of informational work of the Department	\$24,667	\$21,950	\$21,950
2. Business service, including mail and files	26,021	25,930	25,930
3. Publications preparation and control:			
(a) Editorial control and final preparation of manuscripts	32,672	29,349	29,349
(b) Preparation of Yearbook and special reports	11,750	11,750	11,750
(c) Indexing Department publications ..	9,560	9,560	9,560
(d) Preparation of illustrations for publications	18,632	18,632	18,632
(e) Photographic service for the Department	32,565	29,710	29,710
(f) Printing procurement	14,831	12,540	12,540
Total, Publications preparation and control	<u>120,010</u>	<u>111,541</u>	<u>111,541</u>
4. Distribution of agricultural informa- tion directly to the public:			
(a) Control of mailing lists for distribution work	11,863	10,080	10,080
(b) Handling Congressional and general-public requests for agri- cultural information	52,183	50,716	50,716
Total, Distribution of agricultural information directly to the public	<u>64,046</u>	<u>60,796</u>	<u>60,796</u>

PROJECT STATEMENT - Continued.

Projects	1940	1941 (Estimated)	1942 (Estimated)
5. Preparation and distribution of agricultural information to the press	\$28,369	\$28,246	\$28,246
6. Preparation and distribution of agricultural information by radio	29,062	28,780	28,780
7. Addressing, duplicating, and mailing service for the Department	89,291	67,840	67,840
Total obligations	381,466	345,083	345,083
Deduct reimbursements received from the Department of the Interior	- 2,000	- -	- -
Deduct reimbursements for sale of photographic prints	- 258	- 200	- 200
Transferred from "Salaries and administrative expenses, Commodity Credit Corporation"	- 6,000	- -	- -
Transferred to Department of Commerce	+ 1,944	- -	- -
Transferred to Department of the Interior.	+ 800	- -	- -
Transferred to Federal Security Agency ...	+ 2,273	- -	- -
Unobligated balance	+ 815	- -	- -
Total appropriation	379,040	344,883	344,883

WORK UNDER THIS APPROPRIATION

General. Activities under this appropriation include the supervision and correlation of the information work of the Department; the publication, indexing, illustration, and distribution of bulletins, documents, and reports; and the dissemination of agricultural information through the press and radio.

Project 1. General Administration of Office of Information and of Informational Work of the Department:

Objective: To supervise and correlate the informational work of the bureaus within the Department, to establish and control information policies and procedures, and to determine what types of information are to be disseminated to be of greatest assistance to farmers and others.

Problem and Significance: To direct the information program of the Department so as to place the most useful agricultural facts in the hands of farmers and others in practical form; also to convey the needs of farmers to the scientists of the Department, in order that programs may be focused on the most critical agricultural problems. Most of the research, regulatory, or action programs carried on by the Department cannot be of the greatest economic or social significance to farmers and the Nation generally unless

their purposes and the methods by which they are carried on are understood. A greater national benefit is gained when more citizens understand the Department's work and use the knowledge which it gathers and sends out, or take part in the programs which Congress directs the Department to operate.

Project 2. Business Service, including Mail and Files:

Objective: To control the expenditure of funds so as to derive the maximum benefits; to select and appoint competent personnel to discharge the authorized duties of the Office of Information; to maintain office files, provide messenger service, and to service related needs of the Office; and to procure commercially for the Department necessary printing which the Government Printing Office waives for outside purchase.

Problem and Significance: This unit serves the Office of Information in the handling of all fiscal, procurement, and other financial and related activities. It consists of a small service staff, which insures the proper functioning of the Office by meeting many and varied personnel and business requirements. The work of the unit has become increasingly important and complex since it manages the procurement of about \$500,000 worth of printed matter obtained from non-governmental printing establishments.

Project 3. Publications Preparation and Control:

Objective: To review, edit, and prepare for the printer manuscripts and matter reporting the results of research, information on agricultural programs, announcements, and forms necessary for proper administration.

Problem: To insure the accuracy of Department publications and to be responsible for their content; to determine from the material prepared by the various bureaus and offices of the Department what is to be published, the form of publication, and the number of copies.

Significance: This unit handles the editing, indexing, illustrating, and printing involved in making available to farmers and the public material based on studies and research which the Department has been conducting for the benefit of those engaged in agriculture. It is essential that such printed material be accurate in detail and written to insure clarity and brevity. To the degree that the printed publication is faulty and not readily comprehensible, the contemplated benefit to be derived from research is lost.

Plan of Work: To budget, insofar as possible, the money to be used for various types of publications and printed matter, and to determine which manuscripts may or may not be printed with the limited funds available for the purpose; to review critically approximately 1,600 manuscripts each year intended for printing, making necessary revisions and corrections.

Project 4. Distribution of Agricultural Information Directly to the Public:

Objective: To fill requests for agricultural information with appropriate bulletins, and to prepare correspondence to answer such requests when bulletins to cover the subject are not available.

Problem: To select and have mailed bulletins which will most nearly meet the requests for information; to expedite the handling of requests for information, which have during the current year (1940) increased to an average of about 4,500 daily, an increase of about 500 per working day over the previous year.

Significance: This Section is an important arm of the Department in carrying out the mandate of the organic act directing it to diffuse useful information on subjects connected with agriculture. The Department conducts research on many different subjects and administers conservation, adjustment, forestry, rehabilitation, regulatory, and other programs. Daily, the Department receives thousands of requests for information. Until recent years, citizens asked principally for information on the science of production of agricultural products. In the past few years the scope of Department activities has grown, and the variety of information it must disseminate in response to requests has increased. Many of the letters which the Department receives now ask for information emanating from new activities. Citizens in the fiscal year 1940 wrote an average of about 4,500 letters to the Department each working day, an increase of more than 500 over the previous year. This increase is caused by the need of citizens for information on conservation, rehabilitation, and economic and social subjects--information which is vital to the farmer in maintaining his economic position in the changing world and in conserving his resources. To answer these letters individually would cost about 30 cents each. The cost of printing popular bulletins is about 1½ cents each. Obviously, the distribution of bulletins in response to requests is the most economical method for meeting the needs of citizens for Department information.

Project 5. Preparation and Distribution of Agricultural Information to the Press:

Objective: To obtain selective coverage of information arising from the activities of the Department through newspapers, farm papers, trade journals, technical publications, press associations, special writers, and correspondents.

Problem: To prepare in usable form the most significant information for general and specialized farm groups and to obtain the best possible distribution through the press on a selective basis.

Significance: Changing world economic conditions make it necessary for the farmer to keep abreast of prices, demand, market information, and many related economic developments. The Office of Information makes information along these lines available to the press as a means of reaching readers with material they need as rapidly as possible. The findings of the Department

and progress of the action programs are made known to interested persons by carefully distributing releases to selected lists of newspapers, trade journals, and magazines that have requested the releases. Special articles on farm, garden, and home and scientific matters are prepared for syndicates, magazines, and newspapers. The press provides an important channel for informing farmers and other groups of agricultural developments which when brought to their attention can often be used on the farm and in the home. The Press Service prepares and supervises the preparation of about 1900 press releases a year.

Project 6. Preparation and Distribution of Agricultural Information by Radio:

Objective: To utilize time provided by the broadcasters without cost to the Department for the purpose of disseminating speedily to farmers and consumers important information on Department activities.

Problem: Much of the information developed by the Department must be distributed rapidly in order to insure its full usefulness to farmers and others. The radio is the most rapid means for the distribution of information.

Significance: The Radio Service accelerates and widens the distribution of information which farmers and others need in order to keep abreast of practical results of research and to take part in the action programs. The broadcasting of agricultural information helps make possible a citizenry better informed on programs designed to help farmers reduce production costs, maintain the health of consumers through nutritionally adequate diets, contribute to the stability of supplies, prices, and income, and conserve the resources of the country.

Plan of Work: As in the past, the Radio Service will continue to prepare and produce daily, except Saturday and Sunday, 15- to 30-minute information programs, broadcast as one feature of the National Farm and Home Hour, presented by the National Broadcasting Company and transmitted by 92 associated stations in the Eastern, Central, Mountain, and Pacific time zones. In addition, a field office in San Francisco prepares and produces over 11 stations on the Pacific coast a 15-minute broadcast of information for farmers and homemakers; the Washington office in cooperation with the National Broadcasting Company presents a 15-minute Consumer program once a week over a network of 47 stations, prepares and sends to 294 independent stations daily, except Sunday, a 7-minute program giving useful information for farmers, and sends to 256 stations a daily 7-minute program of information to consumers and homemakers. A total of about 120,000 station-hours of broadcasting time is utilized by the Office each year for presenting timely information by radio.

Project 7. Addressing, Duplicating, and Mailing Service for the Department:

Objective and Problem: To duplicate administrative material, press releases, reports, and other information too ephemeral to print. Much of this material is of a rush nature, requiring instant duplication; to conserve funds by producing matter that may legally be duplicated as cheaply as possible; mimeographing costs about one-fourth and multilithing about one-third as much as printing.

Significance: In the successful administration of the Department programs, a large volume of instructions, progress reports, and preliminary information is required. This informational material is duplicated and sent largely to Department employees in Washington and in the field. A service unit--the Addressing, Duplicating, and Mailing Section--processes on request work for the various bureaus and offices of the Department which, in the absence of duplicating machinery, would be reproduced on typewriters. Important announcements in the form of press releases, for instance, are typical of the material this Section duplicates.

(b) PRINTING AND BINDING

Appropriation Act, 1941:

Office of Information (Printing and Binding)	\$1,637,435
Rural Electrification Administration (Salaries and Expenses)	23,000
	<u>1,660,435</u>

Transferred 1941, pursuant to

Reorganization Plan No. IV, to:

Department of Commerce ...-\$60,000

Federal Security Agency...- 22,324

Department of the

Interior - 5,000 87,324Appropriation, 1941 1,573,111 *Budget Estimate, 1942 1,550,111 *Decrease 23,000

* Exclusive of transfers for printing in connection with activities under Parity Payments, Conservation and Use of Agricultural Land Resources (marketing quotas), and Exportation and Domestic Consumption of Agricultural Commodities, as shown below.

PROJECT STATEMENT

Projects	1940	1941 (Estimated)	1942 (Estimated)	Decrease
1. Job work and binding, expenditures for printing:				
(a) Binding	\$44,755	\$40,000	\$40,000	- -
(b) Emergency field printing	7,577	8,500	8,500	- -
(c) Job work	1,006,504	1,159,611	1,159,611	- -
(d) Letterheads	32,645	35,000	35,000	- -
Total	1,091,481	1,243,111	1,243,111	- -
2. Reports, periodicals, and other regulatory, service, and administrative publications, expenditures for printing:				
(a) Agricultural Situation	12,712	13,000	13,000	- -
(b) Annual Reports	16,879	13,000	13,000	- -
(c) Briefly Speaking (AAA)	888	1,000	1,000	- -
(d) Congressional Documents	6,408	6,000	6,000	- -
(e) Consumers' Guide	2,250	2,250	2,250	- -
(f) Crops and Markets	14,621	15,000	15,000	- -
(g) Experiment Station Record	19,451	19,000	19,000	- -

PROJECT STATEMENT - Continued

Projects	1940	1941 (Estimated)	1942 (Estimated)	Decrease
2. Reports, periodicals, and other regulatory, service, and administrative publications, expenditures for printing - Continued.				
(h) Extension Service				
Review	\$6,961	\$8,500	\$8,500	- -
(i) Farmers' Bulletin Lists.	12,624	12,000	12,000	- -
(j) Fire Control Notes	2,015	2,000	2,000	- -
(k) Forest Folders	26,548	23,550	23,550	- -
(l) Indexes	1,444	1,000	1,000	- -
(m) Inventories of Seeds and Plants Imported	3,783	3,000	3,000	- -
(n) Instructions and Procedures (AAA)	23,796	24,200	24,200	- -
(o) Journal of Agricultural Research	6,407	6,000	6,000	- -
(p) Land Policy Review	2,473	7,500	7,500	- -
(q) Monthly List of Publications	1,588	1,500	1,500	- -
(r) RE News	12,969	17,000	17,000	- -
(s) RE News (Separates) ...	14,338	16,000	16,000	- -
(t) REA Instructions and Information	8,048	8,000	8,000	- -
(u) Service and Regulatory Announcements	20,496	20,000	20,000	- -
(v) Soil Conservation Magazine	8,053	8,500	8,500	- -
(w) Unnumbered Publications and Reports	84,414	84,000	80,000	- 4,000
(x) Yearbook	25,000	23,000	23,000	- -
(y) Yearbook Statistical Report	15,000	15,000	15,000	- -
Total	349,166	350,000	346,000	- 4,000
3. Research and Technical Publications, expenditures for printing:				
(a) Circulars	15,817	16,500	16,500	- -
(b) Experiment Station Bulletins and Reports	3,580	3,500	3,500	- -
(c) Journal of Agricultural Research Separates	14,431	15,000	15,000	- -
(d) Reprints and revisions (general)	4,653	4,000	4,000	- -
(e) Reprints of Outside Articles	2,473	2,500	2,500	- -

PROJECT STATEMENT - Continued

Projects	1940	1941 (Estimated)	1942 (Estimated)	Decrease
3. Research and Technical Publications, expenditures for printing - Continued.				
(f) Soil Surveys	\$81,244	\$82,000	\$82,000	- -
(g) Statistical Bulletins ..	9,807	10,000	10,000	- -
(h) Technical Bulletins	37,661	36,500	36,500	- -
Total	169,666	170,000	170,000	- -
4. Farmers' Bulletins and other popular publications, expenditures for printing:				
(a) Agricultural Adjustment Administration bulletins..	58,954	69,500	69,500	- -
(b) Farm Security Administration pamphlets	934	2,000	2,000	- -
(c) Federal Crop Insurance Corporation bulletins	10,683	10,000	10,000	- -
(d) Farmers' Bulletins (new)	30,236	32,000	32,000	- -
(e) Farmers' Bulletins (reprints)	161,397	165,000	165,000	- -
(f) Leaflets (new)	3,243	5,000	5,000	- -
(g) Leaflets (reprints)	16,232	15,000	15,000	- -
(h) Miscellaneous Publications	105,361	98,000	79,000	- \$19,000
(i) Posters	7,983	8,000	8,000	- -
(j) Statistical Separates ..	895	500	500	- -
(k) Yearbook Separates	6,388	5,000	5,000	- -
Total	402,306	410,000	391,000	- 19,000
Total obligations, Printing and Binding.	2,012,619	2,173,111	2,150,111	- 23,000(1)
Transferred to:				
"Printing and Binding, Department of Commerce"	+ 60,000	- -	- -	- -
"Printing and Binding, transferred from Agriculture, Federal Security Agency"	+ 22,324	- -	- -	- -
"Printing and Binding, Department of the Interior, Soil Conservation"	+ 5,000	- -	- -	- -
Received by transfer from:				
Printing and Binding, Rural Electrification Administration	- 85,500	- -	- -	- -
Parity Payments	- 127,494	- 150,000	- 150,000	- -

PROJECT STATEMENT - Continued.

Projects	1940	1941 (Estimated)	1942 (Estimated)	Decrease
Received by transfer from - Continued.				
Conservation and Use of Agricultural Land Resources	-\$100,079	-\$150,000	-\$150,000	- -
Exportation and Domestic Consumption of Agricultural Commodities	- 200,000	- 300,000	- 300,000	- -
Total appropriation ...	1,586,870	1,573,111	1,550,111	-- \$23,000(1)

DECREASE

- (1) A decrease of \$23,000 for printing and binding. For the fiscal year 1941 the sum of \$23,000 was transferred into this appropriation under a special authority contained in the appropriation to the Rural Electrification Administration for administrative expenses. Provision for such a transfer in 1942 has been discontinued in the budget estimates for the fiscal year 1942.

WORK UNDER THIS APPROPRIATION

General. This appropriation is used to finance printing and binding for the bureaus and offices of the Department, including the Agricultural Adjustment Administration, Crop Insurance Corporation, part of the activities of the Farm Security Administration, and the Rural Electrification Administration. Since the recent consolidation by the Congress of funds for printing, only a very few appropriations of the Department carry special authorities for the procurement of printing. An example is the appropriation for rehabilitation work administered by the Farm Security Administration.

Project 1. Job Work and Binding, Expenditures for Printing:

Objective: To procure annually the wide variety of forms, schedules, certificates, etc., which are indispensable to the operation of the programs for which the Department is responsible.

Problem: To use the funds efficiently so that the needs for job printing of the bureaus and offices of the Department can be met. For the "action agencies" the time element involved in having forms printed either at the Government Printing Office or commercially is of paramount importance.

Significance: The Department's programs, especially those dependent to a high degree on widespread farmer participation for success, require annually a large number of operating forms, etc. These include forms necessary for

facilitating daily business and operations of the bureaus and offices of the Department. Binding, letterheads, and emergency field printing are also included under this item.

Plan of Work: The Office of Information supervises expenditures for printing, procured either from the Government Printing Office or from commercial printing concerns, under Government Printing Office waivers, and examines and analyzes all requests for forms with a view to effecting all possible economies.

Project 2. Reports, Periodicals, and Other Regulatory, Service, and Administrative Publications, Expenditures for Printing:

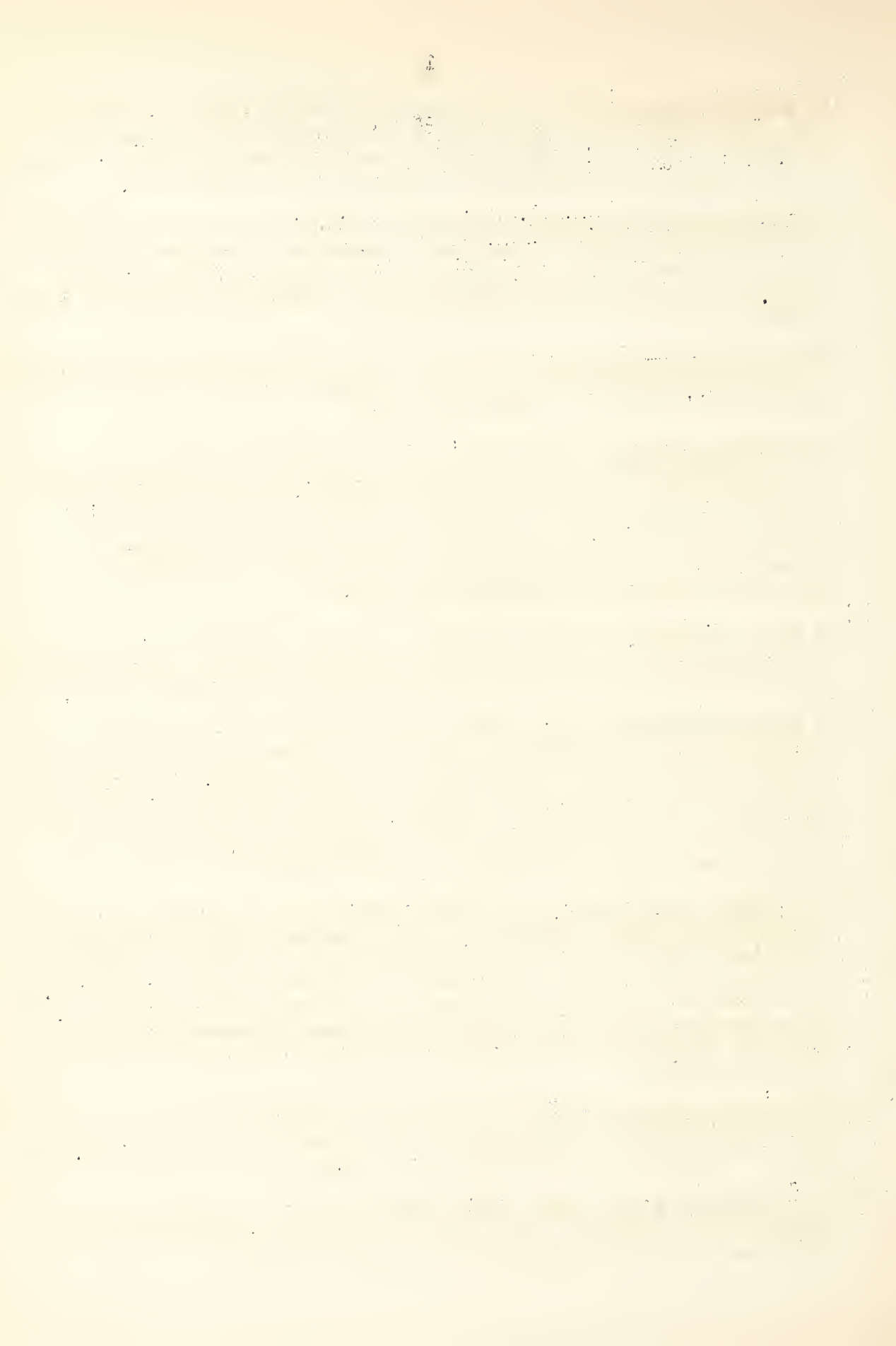
Objective: To advise and inform Department staff workers, collaborators, and those affected by regulatory laws or requiring Department services, in Washington and the field, of developments in Department of Agriculture activities, decisions, and findings in which the recipients of the information are directly interested.

Significance: Printed letters and instructions are sent annually to committeemen instrumental in the administration of the Department's conservation and marketing programs. Department periodicals are used to keep the staff advised. Typical ones financed under this item are the Agricultural Situation, used to keep key groups in agriculture currently informed on the economic situation; Crops and Markets, containing statistics and information on crop and livestock estimates, many of which are mandatory by law; Experiment Station Record, an economical and effective publication on the world's economic and scientific literature distributed chiefly to research workers; Extension Service Review, carrying current extension material regarding extension practices for distribution throughout the extension organization; Forest Folders; Soil Conservation magazine; Rural Electrification News; Journal of Agricultural Research; Yearbook, etc. In addition, indexes, Farmers' Bulletin Lists, Monthly List of Publications, Service and Regulatory Announcements, and Miscellaneous Publications of an administrative nature are included in this category.

Plan of Work: A strict accounting is kept of management and cost of periodicals, constituting the major portion of printing under this item to keep within the Bureau of the Budget authorizations. Mailing lists are reviewed periodically to insure proper and most effective distribution. Emphasis is placed on conciseness and simplicity to effect economies which do not detract from the primary purpose of distributing essential information on current program policies and developments.

- (a) Agricultural Situation.--This periodical is used to keep key groups currently informed of the economic situation, including statistics relating to production, movement, consumption, prices, and purchasing power of various commodities. It is sent monthly to crop reporters, a small group of cooperating economists, technical workers, extension agents, and officials of the Agricultural Adjustment Administration.

- (b) Annual reports.--Many of the reports under this item are required by law. They make a permanent record of the work performed during the preceding fiscal year. These reports are considerably below their former size. This item now includes the action-agency annual reports.
- (c) Briefly Speaking (A.A.A.).--This publication is used to disseminate essential information to A.A.A. committeemen and others cooperating in the Agricultural Adjustment Administration programs. It is printed when material of sufficient importance has accumulated to warrant publication.
- (d) Congressional documents.--Under this item the Department pays for copies of bills, resolutions, reports, Congressional directories, Congressional Records, etc., as Congressional documents.
- (e) Consumers' Guide.--The Consumers' Guide is issued to help meet responsibilities of the Department to consumers. It is circulated to key groups and individuals who serve as focal points in disseminating further the information of special interest to consumers which is contained in the Guide. A small part of the cost of the Guide is financed under this appropriation; the bulk of it is financed from Agricultural Adjustment Administration funds.
- (f) Crops and Markets.--This periodical contains statistics and information on crop and livestock estimates (the printing of many of which is mandatory), market information, reports on supplies, stocks, commercial movements, etc.
- (g) Experiment Station Record.--This periodical is the cheapest and most effective means of keeping before all research workers abstracts of the world's scientific and economic literature on agriculture. In this way the Experiment Station Record assists research workers in keeping informed on current scientific developments, with particular reference to the research reports from the State experiment stations, and it effectively promotes the coordination of research itself.
- (h) Extension Service Review.--Current information on extension practices is published in this periodical for distribution monthly throughout the extension organization. The periodical also serves to keep extension agents informed on actions of the Agricultural Adjustment Administration. It reviews new extension developments in the various State institutions. It is especially important at this time because extension officials cooperate in the Soil Conservation and Domestic Allotment and other land-use programs.
- (i) Farmers' Bulletin lists.--These lists are furnished to Members of Congress, extension agents, and farmers to show available publications. Farmers' Bulletins are mailed only upon request.
- (j) Fire Control Notes.--Fire Control Notes is issued bimonthly to keep members of the staff and cooperators of the Forest Service informed on developments in the techniques of forest-fire control.



- (k) Forest folders.--Folders are used to induce the millions of visitors to use the national forests properly in order to reduce the fire hazard. They are also being used by members of the Civilian Conservation Corps as a source of information on forestry purposes and practices.
- (l) Indexes.--Indexes become increasingly important as Department publications increase in number and scope.
- (m) Inventory of seeds and plants imported.--Importations of seeds and plants are becoming more important because of the Department's search for erosion-and drought-resistant vegetation. These inventories contain a record of new and little-known seeds and plants procured mostly from abroad for the use of the Department, State experiment stations, and experimenters in appropriate locations throughout the United States.
- (n) Instructions and procedures.--This item consists chiefly of letters of an administrative nature, instructions, and procedures for Agricultural Adjustment Administration committeemen to follow in administering the Department's conservation and adjustment programs.
- (o) Journal of Agricultural Research.--The Journal of Agricultural Research carries the most technical reports of pure research performed in the Department and the State experiment stations. Its distribution is limited rigidly to selected libraries.
- (p) Land Policy Review.--This periodical presents significant results of research and study in fundamental agricultural problems and supplies information helpful for the organization of county land-use planning work.
- (q) Monthly List of Publications.--For economy, the Department does not list those who ask to receive all printed publications. The list of new publications is mailed instead. Scientists, economists, foreign and domestic libraries, and teachers make up the bulk of the mailing list.
- (r) RE News.--The News is issued to provide information on the progress and development of the rural electrification program to members of the staff and to the cooperatives which have borrowed Government funds for electrification. It is sent to officials of the systems to stimulate sound management of the business of distributing electricity so that the repayment of Government loans will be insured.
- (s) RE News (Separates).--Separates from the Rural Electrification News are issued each month in larger quantities than the regular issue of the News. These separates contain useful information to consumers of electricity on Rural Electrification Administration cooperative lines. Their purpose is to help build load on the lines and thus protect the loans which the Government has made for rural electrification.
- (t) REA Instructions and Information.--This item consists largely of instructions of an administrative nature which are sent to Rural Electrification Administration cooperatives.

- (u) Service and Regulatory Announcements.--These consist of Bureau of Animal Industry orders, notices of quarantine, and other announcements of a mandatory character, which are essential in carrying forward the Department's regulatory programs.
- (v) Soil Conservation Magazine.--This periodical, issued monthly and sent to a selected list of staff members of the Department and associated agencies, (1) conveys administrative information to members of the field staff of the Soil Conservation Service; (2) equips specialists of the Service and co-operating agencies with current technical and scientific knowledge in soil conservation and related fields; (3) serves as a clearing house of ideas and experiences; (4) provides a valuable archive of conservation history; and (5) serves as a reference work of authentic and practical information concerning a comprehensive action program which involves the application of many new technical developments and improvements.
- (w) Unnumbered publications.--This series is used for various bulletins which cannot logically be classified in the other Department series. Examples include such publications as "Science Serving Agriculture," "Topsoil, Its Preservation," and "Soil and Water in the Northern Great Plains."
- (x) Yearbook of Agriculture.--The Yearbook, which is an annual publication required by law, presents information on the new developments of agriculture. The 1936 and 1937 Yearbooks consisted of a comprehensive treatment of the subject of plant and animal breeding. The 1938 Yearbook deals comprehensively with the subject of soils and soil conservation; the 1939 Yearbook covers the nutrition of humans and animals; and the 1940 Yearbook entitled, "Farmers in a Changing World," deals with economics. The bulk of the Department's distribution is to its own collaborators, and the Congressional distribution (paid for from Congressional funds) is to farmers, etc.
- (y) Statistical Report.--The statistics previously incorporated in the Yearbook of Agriculture are now published in a separate volume for purposes of economy. Probably not more than 10 percent of those who receive the Yearbook are interested in the detailed statistics. On the other hand, many persons have a distinct need for additional statistics which were not previously published in the Yearbook.

Project 3. Research and Technical Bulletins, Expenditures for Printing:

Objective: To make known, particularly to scientists, the results of research conducted in Department laboratories and field experiment stations.

Problem: To manage the issuance of technical publications so as to be able, with the limited fund for printing, to keep as nearly current as possible the publication of results of Department research. This is essential because the printing appropriation ordinarily must be used first for procuring forms and other matter indispensable to the operation of the Department's programs.

Significance: The acquisition, and distribution of new knowledge of economic value to American agriculture is a primary function of the Department. Research and technical bulletins are a medium by which this information is made available to men of science and others who utilize technical information of the Department. During the fiscal year 1940 more than 150,000 copies of 33 new technical bulletins made available the results of research in soils, insects, meats, dairy products, textiles, vegetables, wildlife, weather, forest products, markets, consumer purchases, and production costs. Included in this general category, in addition to the technical bulletins, are statistical bulletins, circulars of a semitechnical nature, soil surveys (which are mandatory by law), and Journal of Agricultural Research Separates (which are distributed more widely than the Journal). The Journal is sent primarily to libraries.

- (a) Circulars.---Circulars report in semitechnical form current results of the manifold research programs of the Department. Some examples are "Review and Discussion of Literature Pertinent to Crop Rotations for Erodible Soils" and "Proximate Composition of American Food Materials."
- (b) Experiment Station bulletins and reports.---This series is used to report the results of work done at the insular research stations; it includes also the annual reports of the insular stations.
- (c) Journal of Agricultural Research separates.---As the bound copies of the Journal itself are sent to a very restricted mailing list, separates are printed for scientists who request technical information on the specific subject covered. Only libraries and foreign institutions on an exchange list receive the Journal itself free of charge.
- (d) Reprints of former series and of outside articles.---A number of series, such as Department Bulletins, Department Circulars, and Miscellaneous Circulars, have been superseded by other series. However, much scientific information contained in the older publications is necessary in carrying on current work and can be reprinted for less than it would cost to print new manuscripts. The Department also sometimes buys 100 to 200 copies of reprints of current technical material prepared by Department scientists but printed in nongovernmental publications.
- (e) Soil surveys.---The soil survey publications are mandatory by law. Soil surveys serve many purposes in research and extension programs. They are a permanent record of soil factors, knowledge of which is essential as a guide to farmers and Federal, State, and private agencies interested in the adaptabilities and values of various lands. For reasons of economy the soil surveys are published on the smallest scale consistent with convenience in filing, ease of handling, and showing needed information over as large an area as possible on a single sheet. Usually this can be done at a scale of 1 inch to the mile, which keeps the cost at a minimum and shows a large area on a single sheet. This is necessary for such purposes as rural zoning, county planning, and other activities which involve a large number of farms or large areas of land. On such a map it is convenient to

compare various portions of a large area on one complete base map. Where soils, topography, and other factors are rather uniform over extensive areas a smaller scale may be used. The survey maps and textual information accompanying them are becoming increasingly useful in connection with the coordination of broad land-use programs of the Department and cooperating agencies and are extensively used for program planning by the Extension Service, State planning boards, State colleges of agriculture and experiment stations, Federal and private credit agencies, and fertilizer companies and many other agencies whose work is affected by the general distribution of various land types.

(f) Statistical bulletins.--All statistical publications, including those on futures trading (the printing of many of which is mandatory), are contained in this series. An example is "Stumpage and Log Prices."

(g) Technical Bulletins.--This is one of the most important series of publications issued by the Department. Technical Bulletins form a permanent record of research results for Department scientists, cooperating institutions, and scientists of the experiment stations. The Department publishes valuable research results in this series to enable the public to obtain the information in a usable form. The length of each manuscript and the number of copies printed has been reduced, but, if a research report is to be valuable, it must be reasonably complete. Some recent examples of these publications are these: "Further Observations on the Response of Various Species of Plants to Length of Day" and "A Study of Methods in Barley Breeding."

Project 4. Farmers' Bulletins, and other Popular Publications, Expenditures for Printing:

Objective: To make available to farmers and the general public information of practical value in nontechnical style readily usable by millions of citizens who need the information to put proven agricultural methods into practice on the farm and in the home.

Significance: The Farmers' Bulletins constitute one of the most widely used series of publications issued by the Government. More than 12,000,000 copies of Farmers' Bulletins and Leaflets (the latter simply 4 and 8 page Farmers' Bulletins) were distributed in the fiscal year 1940. They are one of the most effective means of putting science into practice. In accordance with law, four-fifths of the copies of Farmers' Bulletins are distributed by Members of Congress. Under this item also are issued general Agricultural Adjustment Administration bulletins describing for farmers participating in the program various phases of conservation and agricultural adjustment; the Farm Security Administration bulletins, some of which describe the terms of loans and qualifications which borrowers must meet under the Bankhead-Jones Farm Tenant Act; publications explaining the variable payment plan for repaying tenant purchase loans; Crop Insurance bulletins; Yearbook and Statistical separates; and such miscellaneous publications as "Planning for a Permanent Agriculture", "The Land in Flood Control", and "Motor Fuels from Farm Products". The miscellaneous group is largely nontechnical and the distribution somewhat specialized.

- (a) Agricultural Adjustment Administration bulletins.--These bulletins are used to disseminate essential information to individual farmers who are eligible to participate in the farm programs. An example of this type of publication is "The 1939 AAA Farm Program." Bulletins designed to inform the general public on the work of the program and its relationship to other phases of our national life are also being issued. Examples of these include materials on specific parts of the program such as "The Wheat Problem", "Give the Range a Chance", and materials on the relationship of agriculture and industry.
- (b) Farm Security Administration bulletins.--Small question-and-answer leaflets explaining the terms of loans and the qualifications of borrowers under the Bankhead-Jones Farm Tenant Act are distributed to applicants for tenant purchase loans, and question-and-answer leaflets explaining the variable payment plan for repaying tenant purchase loans under the Act are distributed to borrowers.
- (c) Crop Insurance bulletins.--Participation of wheat growers in the wheat crop insurance program is made possible only through a thorough understanding of the program on the part of growers. An important element in the educational program to promote such understanding is the series of bulletins issued by the Federal Crop Insurance Corporation and distributed through State and county farmer-committees. This series consists of several 12- or 16-page publications which outline the general operation of the program and how farmers may avail themselves of its benefits, as well as leaflets which deal with some particular phase of the program or its application to special wheat production problems in certain areas.
- (d, e, f, and g) Farmers' Bulletins and Leaflets (new and reprints).--Farmers' Bulletins are published to place useful information in the hands of farmers. They constitute one of the most effective means of putting science into practice. Four-fifths of all Farmers' Bulletins are distributed by Members of Congress. The Department and most Members of Congress mail Farmers' Bulletins only upon specific request. The Leaflets are merely 4- and 8-page Farmers' Bulletins. Farmers' Bulletins cost only about 1-1/2 cents a copy. If they did no more than enable the Department to answer correspondence expeditiously and efficiently, they would be worth far more than they cost, as the cost of preparing and mailing a special letter in response to requests for information averages about 30 cents.
- (h) Miscellaneous Publications.--Material for specialized distribution is contained in the Miscellaneous Publications. Among them are some conservation publications carrying practical information to the public and such publications as "Planning for a Permanent Agriculture", "The Land in Flood Control", "Motor Fuels from Farm Products", etc. The material is largely nontechnical and the distribution is always specialized.
- (i) Posters.--Posters are used sparingly by the Department and then only in connection with special campaigns, such as those involving the elimination of livestock diseases, forest fire protection, and various conservation programs.

(j and k) Yearbook and statistical separates.--The Yearbook and the statistical report contain a number of separate, specialized articles and tables comprising related parts in the complete treatment of a broad subject such as genetics or soils, or income and production. Separates are printed in very small volume for use in answering correspondence.

SUPPLEMENTAL FUNDS

Direct Allotments

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Conservation and Use of Agricultural Land Resources:</u> For informational work in connection with agricultural conservation programs	\$17,021	\$17,100	\$17,100
<u>Exportation and Domestic Consumption of Agricultural Commodities:</u> For informational work in connection with the exportation and domestic consumption of agricultural commodities	14,754	13,500	13,500
<u>Land Utilization and Retirement of Submarginal Land:</u> For informational work in connection with the land utilization and retirement of submarginal land program..	8,995	2,800	2,800
<u>Administration of the Sugar Act of 1937:</u> For informational work in connection with the administration of the Sugar Act	7,500	7,500	7,500
<u>Loans, Grants, and Rural Rehabilitation:</u> For informational work in connection with rehabilitation program of the Farm Security Administration	40,503	48,500	48,500
For standard and departmental forms for use in connection with emergency relief programs of the Department	3,000	- -	- -
<u>Flood Control, General (Transfer to Agriculture):</u> For informational work in connection with the flood-control program of the Department of Agriculture	2,980	3,000	2,000
<u>Salaries and Expenses, Rural Electrification:</u> For informational services arising out of the programs of the Rural Electrification Administration...	4,997	5,000	5,000
<u>Administration of Federal Crop Insurance Act:</u> For informational work in connection with the administration of the Federal Crop Insurance Act	5,000	4,800	4,800
<u>Administrative Expenses, Commodity Credit Corporation:</u> For informational work in connection with the program of the Commodity Credit Corporation	(a)	6,000	6,000

SUPPLEMENTAL FUNDS - Continued

Direct Allotments - Continued

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Working Fund, Agriculture, Information</u> <u>("Salaries, Office of the Secretary</u> <u>of the Interior")</u> : For informational work rendered to the Bureau of Biological Survey	\$2,000	\$4,000	- -
Total, Supplemental funds (direct allotments)	106,750(a)	112,200	\$107,200

(a) \$6,000 transferred from Commodity Credit Corporation, to "Salaries and Expenses," Office of Information, fiscal year 1940, under Reorganization Plan No. I.

LIBRARY

SALARIES AND EXPENSES

Appropriation Act, 1941	\$105,000
Transferred 1941, pursuant to Reorganiza- tion Plan No. IV, to:	
Federal Security Agency, incident to transfer of the Food and Drug Admin- istration	- 2,000
Department of Commerce, incident to transfer of the Weather Bureau	- 1,000
Available, 1941	102,000
Budget Estimate, 1942	102,000

PROJECT STATEMENT

Projects	1940	1941 (Estimated)	1942 (Estimated)
1. General administration and business service	\$ 19,720	\$ 19,555	\$ 19,555
2. Acquisition of publications by purchase, gift, and exchange, and preparation of material for binding	45,084	42,915	42,915
3. Classifying, cataloging, and indexing of publications	20,904	20,720	20,720
4. Circulation, reference, and bibliographical work	19,257	18,810	18,810
Transferred to:			
Federal Security Agency	2,000	-----	-----
Department of Commerce	1,000	-----	-----
Unobligated balance	5	-----	-----
Total appropriation	107,970	102,000	102,000

WORK UNDER THIS APPROPRIATION

General. The Library is one of the basic units in the research extension, service, and regulatory work of the Department and the State agricultural agencies. With its branches in the various bureaus, it contains approximately 300,000 volumes, probably the most extensive agricultural collection existing in any country. It receives currently approximately 5,000 periodicals. Its services are used not only by the Department of Agriculture but also by other Government agencies in Washington and by

investigators throughout the country. Its aim, in general, is to serve as the national agricultural library. The organization of the main Library consists of (1) Business Office, (2) Catalog Division, (3) Periodical Division, and (4) Readers' Division. The activities of these various units are described under the following project heads:

Project 1. General administration and business service. The administrative office handles the finances, general correspondence, and personnel matters; orders the books, periodicals, and newspapers; purchases library equipment; and supervises the upkeep of the Library.

Project 2. Acquisition of publications by purchase, gift, and exchange, and preparation of material for binding:

Objective: To acquire, through purchase, gift, and exchange, the agricultural, scientific, technical, and economic books and periodicals needed in the work of the Department.

Plan of Work: The work of acquisition is divided between the Catalog Division and the Periodical Division. The Chief of the Catalog Division supervises the acquisition of books, and the Chief of the Periodical Division has charge of the acquisition of periodicals and other serials. In the carrying out of this work current lists of new publications appearing in trade catalogs, publications of institutions, and journals are regularly scanned for items of interest in the work of the Department, and correspondence is carried on with other institutions in regard to exchanges.

The following tabulation shows the approximate amounts obligated in 1940 and the estimated obligations for 1941 and 1942 for various work projects:

	1940	1941	1942
Personal services	\$18,322	\$17,800	\$17,800
Purchase of books and other publications (except periodicals and newspapers)	16,079	12,930	12,915
Purchase of periodicals	11,100	11,000	11,000
Purchase of newspapers	1,143	1,185	1,200
	46,644	42,915	42,915

Project 3. Classifying, cataloging, and indexing of publications:

Objective: To make the contents of the Library readily available by classifying the publications in accordance with the printed classification of the Library and by maintaining a complete author and subject catalog of its collections.

Plan and Progress of Work: The catalog of the Library, maintained by the Catalog Division, is a dictionary card catalog with authors and subjects in one alphabetical arrangement. It comprises more than a million cards and furnishes an invaluable key to the literature of agriculture, the related sciences, and economics, enabling the Library to give outstanding

bibliographical service in these special subjects. In addition, the Catalog Division maintains a shelf list of all the holdings of the Library. This is arranged in the order that the books are arranged on the shelves, which is in accordance with the printed classification.

The following tabulation shows the number of cataloged accessions, the cards added to the catalog, and the number of uncataloged items at the end of each fiscal year for the period 1936-1940:

	<u>1936</u>	<u>1937</u>	<u>1938</u>	<u>1939</u>	<u>1940</u>
Items cataloged and classified .	14,807	15,222	18,647	18,704	18,128
Cards added to the Library					
catalog	21,701	24,031	23,944	20,297	25,828
Uncataloged items at end of					
fiscal year	5,763	8,600	6,759	8,523	7,865

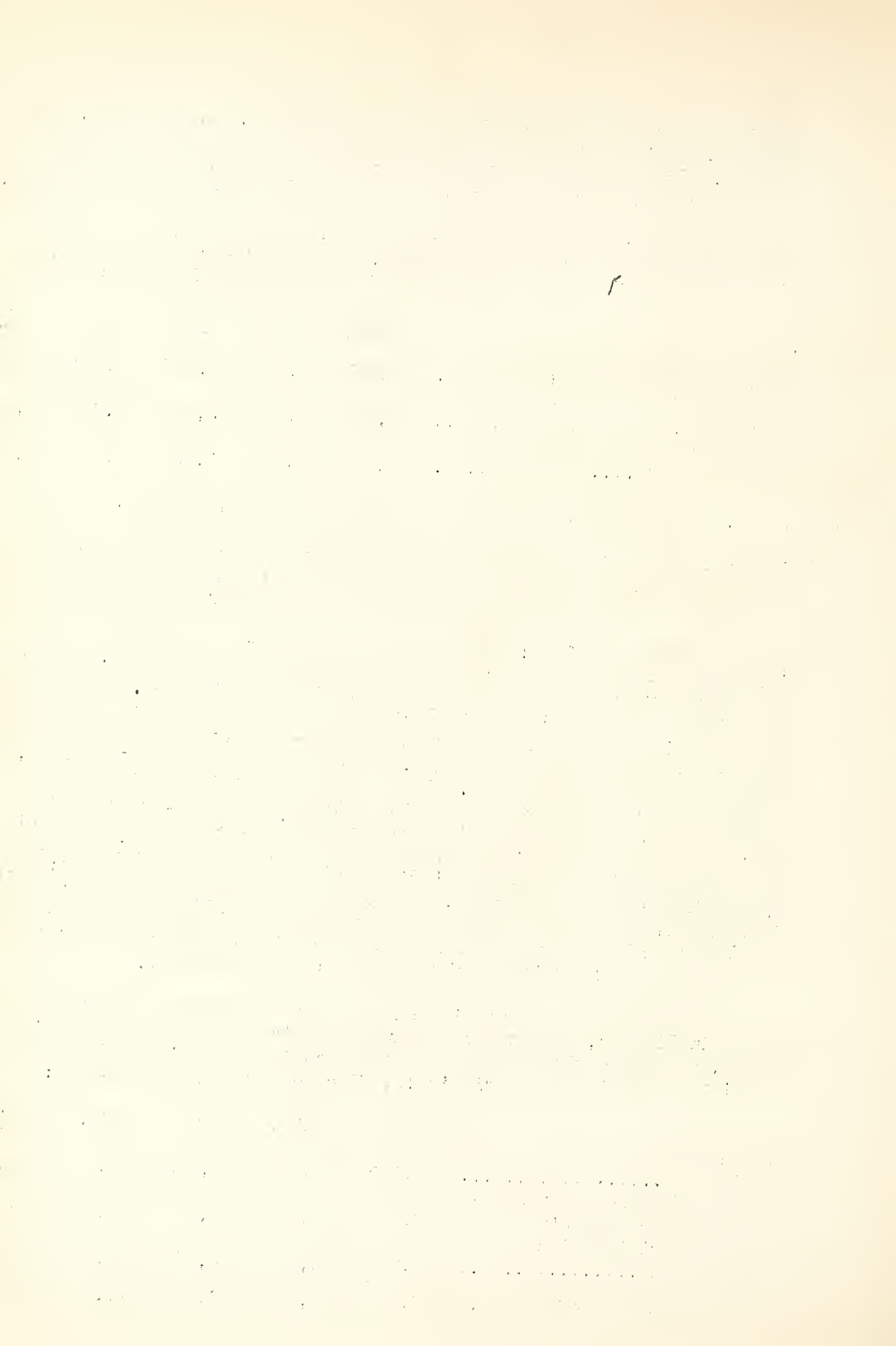
Project 4. Circulation, reference, and bibliographical service:

Objective: To facilitate the use of the Library by lending the books and periodicals needed, by locating needed information, and by gathering references on subjects and problems being investigated by the Department.

Plan and Progress of Work: This service to readers is carried on by the Circulation Section and the Reference Section of the Readers' Division and by the Circulation Section of the Periodical Division. The Circulation Section (Readers' Division) circulates the books that are requested and maintains a charging system which enables it to tell what books are charged, to whom they are charged, the dates when they were charged, and when they should be returned. In other words, it is the information center in regard to the whereabouts of the books contained in the Library. The Circulation Section (Periodical Division) circulates the current periodicals and is the information center in regard to their location. The Reference Section (Readers' Division) assists users of the Library by finding needed information, by gathering references and bibliographical information needed in answering the various inquiries addressed to the Department, and by preparing lists and bibliographies needed in making more fully available the resources of the Library.

The following tabulation shows the number of books charged at the main Library, the number of current periodicals entered and circulated, and the number of film and print copies of articles furnished in lieu of lending the periodicals, fiscal-year period 1936-1940:

	<u>1936</u>	<u>1937</u>	<u>1938</u>	<u>1939</u>	<u>1940</u>
Books charged at main					
Library	60,070	65,970	67,689	74,605	72,170
Number of current periodicals entered and circulated	83,892	86,490	92,362	90,300	91,018
Film and print copies					
furnished	3,206	4,368	4,349	7,007	7,622
Total number of items ..	146,168	154,828	164,300	171,912	170,810



SUPPLEMENTAL FUNDS

Direct Allotments

	Obligated 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Conservation and Use of Agricultural Land Resources:</u> For reference work and circulation of books and periodicals	\$1,495	\$1,500	\$1,500
<u>Salaries and Expenses, Agricultural Adjustment Administration:</u> For reference work and circulation of books and periodicals	1,498	1,500	1,500
Total, supplemental funds (direct allotments)	2,993	3,000	3,000

OFFICE OF EXPERIMENT STATIONS

(a) PAYMENTS TO STATES, HAWAII, ALASKA,
AND PUERTO RICO FOR AGRICULTURAL EXPERIMENT STATIONS

Appropriation Act, 1941 \$6,862,500
Budget Estimate, 1942 6,862,500

PROJECT STATEMENT

Projects	1940	1941 (Estimated)	1942 (Estimated)
1. Hatch Act (March 2, 1887)	\$720,000	\$720,000	\$720,000
2. Adams Act (March 16, 1906)	720,000	720,000	720,000
3. Purnell Act (February 24, 1925) ..	2,880,000	2,880,000	2,880,000
4. Hawaii Station Act (May 16, 1928).	60,000	67,500	67,500
5. Alaska Station Act (February 23, 1929)	15,000	15,000	15,000
6. Alaska Station Act (June 20, 1936)	8,750	10,000	10,000
7. Puerto Rico Station Act (March 4, 1931)	45,000	50,000	50,000
8. Bankhead-Jones Act, Title I (June 29, 1935)	2,400,000	2,400,000	2,400,000
Total appropriation	6,848,750	6,862,500	6,862,500

WORK UNDER THIS APPROPRIATION

General. The several appropriations under "Payments to States, etc." represent the Federal Government's support and encouragement to the State, Territorial, and Puerto Rican agricultural experiment stations which were established as departments of the land-grant colleges pursuant to the provisions of the Hatch Act of 1887.

The object and duty of the State agricultural experiment stations is to conduct researches and experiments along the lines authorized by the several Federal-grant fund acts and the complementary acts of the States on the many problems constantly encountered in the development of a permanent and sustaining agriculture and in the improvement of the economic and social welfare of the farm family.

The primary function and obligation of the State agricultural experiment stations is to meet the needs of the farmers of the several States

through the study and solution of State and local problems. This function is expressed in the Hatch Act of 1887 and the Adams Act of 1906, which specify, in authorizing appropriations for these stations for agricultural research, that the investigations conducted should be with "due regard to the varying conditions and needs of the respective States and Territories."

In addition to their function of serving State and local needs, the research programs of the State stations include participation in regional and national programs. Since the economic and social welfare of the rural population and the general consumer public of a State is definitely affected by and definitely related to the welfare of the population of other States, joint attack by a group of State stations is the most effective and often the only practical approach to problems of common interest.

The research programs of the State agricultural experiment stations and the United States Department of Agriculture are supplementary and interdependent. The Department of Agriculture, having primary responsibility to improve agriculture and the rural home for the whole country, approaches agricultural problems from the regional and national viewpoint but without losing sight of the fact that the individual farm and farm family is the fundamental unit of American agriculture. A large part of the research work of the State stations and the Department is conducted on an actively cooperative basis to use all available resources to the best advantage. The State agricultural experiment stations, for example, look to the Department of Agriculture for leadership in the solution of regional and national problems, for synthesizing the results of related research, and for assistance in attacking new problems of potential regional or national significance. The Department, on the other hand, depends upon the State agricultural experiment stations for bringing to bear upon problems an intimate knowledge of local conditions and adapting the general conclusions or developments of the Department and broadly cooperative research to the varying conditions of the individual States.

The Federal-grant funds for the State agricultural experiment stations are authorized by the Hatch Act of March 2, 1887, the Adams Act of March 16, 1906, the Purnell Act of February 24, 1925, and Title I of the Bankhead-Jones Act of June 29, 1935. As the same stations receive benefits from each of these acts and the funds are used for the same general purpose, the explanatory notes covering these funds are treated as a unit to avoid repetition of the various statements which apply to each of the funds.

Alaska, Hawaii, and Puerto Rico have had the benefits of the Hatch, Adams, and Purnell Acts extended to them through special authorizing acts of Congress. Since there are separate acts applying to each of these possessions and each of these areas has its own peculiar agricultural problem, individual justifications are included for the estimates in these cases.

Projects 1, 2, 3, and 8. Payments to States for Agricultural Experiment Stations under the Hatch Act (March 2, 1887), the Adams Act (March 16, 1906), the Furnell Act (February 24, 1925), and Title I of the Bankhead-Jones Act (June 29, 1935):

Objective: To provide for research by the State agricultural experiment stations (and by the Hawaii, Alaska, and Puerto Rico stations under the Bankhead-Jones Act) for the purpose of solving the problems encountered in the improvement of agriculture and rural life.

Authorization: The authorizations for the Federal-grant funds provided by the Hatch Act, Adams Act, Furnell Act, and Title I of the Bankhead-Jones Act are briefly as follows:

THE HATCH ACT (March 2, 1887). This Act authorizes \$15,000 per annum to each State for agricultural experiment stations "To aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science."

THE ADAMS ACT (March 16, 1906). This Act authorizes \$15,000 per annum to each State for the more complete endowment and maintenance of the State agricultural experiment stations to be "applied only to paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry of the United States."

THE PURNELL ACT (February 24, 1925). This Act authorizes \$60,000 per annum to each State for the more complete endowment of agricultural experiment stations to be "applied only to paying the necessary expenses of conducting investigations or making experiments bearing directly on the production, manufacture, preparation, use, distribution, and marketing of agricultural products and including such scientific researches as have for their purpose the establishment and maintenance of a permanent and efficient agricultural industry and such economic and sociological investigations as have for their purpose the development and improvement of the rural home and rural life and for printing and disseminating the results of said researches."

Under the Hatch, Adams, and Purnell Acts each State receives an equal amount, \$90,000 annually. The States are not required to provide offset or matching funds under these Acts. The States are expected, however, to provide the larger part of the facilities for research in the way of buildings and land.

THE BANKHEAD-JONES ACT, TITLE I (June 29, 1935). For payments to the States, Hawaii, Alaska, and Puerto Rico for agricultural experiment stations, this Act authorizes the following appropriations to be apportioned on the basis of rural population: Fiscal year 1936, \$600,000; fiscal year 1937, \$1,200,000; fiscal year 1938, \$1,800,000; fiscal year 1939, \$2,400,000; fiscal year 1940 and thereafter, \$3,000,000. Beginning with the fiscal year 1939, the full amounts have not been appropriated, as shown in the following tabulation of action taken in regard to this item:

Title I, Bankhead-Jones Act of 1939

<u>Fiscal year</u>	<u>Authorized by Title I of the Bankhead-Jones Act</u>	<u>Budget Estimate</u>	<u>Appropriation</u>
1939	\$2,400,000	\$1,800,000	\$2,100,000
1940	3,000,000	2,400,000	2,400,000
1941	3,000,000	2,400,000	2,400,000
1942	3,000,000	2,400,000	- - -

The appropriation for payments to States, Hawaii, Alaska, and Puerto Rico under Title I of the Bankhead-Jones Act is for agricultural research similar to that specified in section 1 of the Act as follows:

"research into laws and principles underlying basic problems of agriculture in its broadest aspects; research relating to the improvement of the quality of, and the development of new and improved methods of production of, distribution of, and new and extended uses and markets for, agricultural commodities and by-products and manufactures thereof; and research relating to the conservation, development, and use of land and water resources for agricultural purposes."

The payments to the State agricultural experiment stations authorized by Title I of the Bankhead-Jones Act differ from those provided by previous acts in two important respects:

1. The allotment to each State, Territory, and Puerto Rico is contingent upon the State, Territory, or Puerto Rico making available out of its own funds during the fiscal year at least an equal amount for agricultural research and for the establishment and maintenance of necessary facilities for the prosecution of such research. Beginning with the first allotments to the State stations under this Act in 1936 and through 1940 the States as a whole have increased the amount of funds for the stations from State sources by an ^{average annual} amount in excess of \$750,000. In 1936, the grants for the State stations under the Bankhead-Jones Act totaled \$600,000 and the increase in funds of the stations from State sources was \$745,852.87. In 1937, there was an increase of \$600,000 under the Bankhead-Jones Act and an increase of \$713,074.01 in the income of the State stations from State sources. In 1938, there was a further increase of \$600,000 under the Bankhead-Jones Act and an increase of \$1,541,315.71 in the income of the State stations from State sources. In 1939, there was an increase under the Bankhead-Jones Act of \$300,000 and an increase of \$465,940.18 in the income from State sources. The increase under the Bankhead-Jones Act in 1940 was \$300,000 and the increase in State station income from State sources was \$286,490.

2. The allotments under the Bankhead-Jones Act are apportioned on the basis of rural population, the funds authorized by previous acts being on the basis of an equal amount for each State.

The allotments under Title I of the Bankhead-Jones Act to each State, Hawaii, Alaska, and Puerto Rico, as appropriated in the fiscal years 1940 and 1941 and as estimated for the fiscal year 1942, are as follows:

Allotments to Stations under the Bankhead-Jones Act of June 29, 1935,
 Title I, as Appropriated 1940 and 1941, and Budget Estimate 1942

Station	
Alabama	\$82,695.12
Alaska	2,236.48
Arizona	12,422.56
Arkansas	63,983.20
California	65,941.96
Colorado	22,430.96
Conn. (New Haven)	10,329.04
Conn. (Storrs)	10,329.04
Delaware	5,010.20
Florida	30,801.64
Georgia	87,522.92
Hawaii	9,186.40
Idaho	13,718.56
Illinois	86,736.52
Indiana	62,722.60
Iowa	64,854.64
Kansas	50,050.96
Kentucky	78,938.04
Louisiana	55,133.44
Maine	20,692.16
Maryland	28,550.48
Massachusetts	18,182.20
Michigan	66,967.84
Minnesota	56,797.64
Mississippi	72,651.40
Missouri	76,967.80
Montana	15,503.16
Nebraska	38,776.60
Nevada	2,460.64
New Hampshire	8,357.20
New Jersey	30,525.84
New Mexico	13,761.00
New York (Geneva)	8,983.16
New York (Ithaca)	80,848.48
North Carolina	102,628.00
North Dakota	24,675.76
Ohio	93,014.76
Oklahoma	68,450.84
Oregon	20,175.80
Pennsylvania	134,689.52
Puerto Rico	48,552.16
Rhode Island	2,263.84
South Carolina	59,464.96
South Dakota	24,432.44
Tennessee	74,783.88
Texas	149,364.76
Utah	10,503.68
Vermont	10,471.60
Virginia	71,144.56
Washington	29,515.72
West Virginia	53,813.44
Wisconsin	60,224.88
Wyoming	6,759.52
Total	2,400,000.00

Income of State Agricultural Experiment Stations: As explained under the heading "authorization", the only Federal-grant fund act which requires offsetting on the part of the States is the Bankhead-Jones Act. Although none of the other Federal-grant fund acts include such a requirement, the States as an average have been contributing more than \$2 to the support of their agricultural experiment stations to each \$1 of all Federal-grant funds received for agricultural research. A chart has been prepared which shows graphically for the last 46 years the relationship of the amounts of the Federal-grant fund appropriations to the income of the State agricultural experiment stations from State sources. Copies of this chart are available for members of the committee.

During the fiscal year 1940, the income of the State, Territorial, and Puerto Rican agricultural experiment stations from State sources was \$14,367,998.61, as compared to \$6,848,750 Federal-grant funds appropriated.

The amount of the Federal-grant fund allotments and income from State sources of each of the State, Territorial, and Puerto Rican agricultural experiment stations for the fiscal year 1940 is shown in the following tabulation:

Income of the experiment stations for the fiscal year ended June 30, 1940

Station	Federal	Non-Federal	Total
Alabama	\$172,695.12	\$426,837.26	\$599,532.38
Alaska	25,986.48	18,743.30	44,729.78
Arizona	102,422.56	124,212.51	226,635.07
Arkansas	153,983.20	125,499.54	279,482.74
California	155,941.96	1,458,789.71	1,614,731.67
Colorado	112,430.96	163,487.86	280,918.82
Connecticut (State) ..	55,329.04	264,392.66	319,721.70
Connecticut (Storrs) .	55,329.04	60,807.50	116,136.54
Delaware	95,010.20	46,572.73	141,582.93
Florida	120,801.64	608,496.34	729,297.98
Georgia	177,522.92	138,918.23	316,441.15
Hawaii	69,186.40	105,122.55	174,308.95
Idaho	103,718.56	66,229.60	169,948.16
Illinois	176,736.52	515,922.30	692,658.82
Indiana	152,722.60	963,915.68	1,116,638.28
Iowa	154,854.64	366,423.88	521,278.52
Kansas	140,050.96	207,202.68	347,253.64
Kentucky	168,938.04	346,203.43	515,141.47
Louisiana	145,133.44	117,443.93	262,577.37
Maine	110,692.16	96,905.38	207,597.54
Maryland	118,550.48	152,369.90	270,920.38
Massachusetts	108,182.20	213,074.82	321,257.02
Michigan	156,967.84	247,805.62	404,773.46
Minnesota	146,797.64	466,007.42	612,805.06
Mississippi	162,651.40	214,739.52	377,390.92
Missouri	166,967.80	187,935.98	354,903.78
Montana	105,503.16	135,508.95	241,012.11
Nebraska	128,776.60	199,261.70	328,038.30
Nevada	92,460.64	16,482.71	108,943.35
New Hampshire	98,357.20	69,410.10	167,767.30
New Jersey (College) .	120,525.84	-----	120,525.84
New Jersey (State) ...	-----	499,554.42	499,554.42
New Mexico	103,761.00	68,516.97	172,277.97
New York (Cornell) ...	161,848.48	826,452.74	988,301.22
New York (State)	17,983.16	382,523.54	400,506.70
North Carolina	192,628.00	113,710.24	306,338.24
North Dakota	114,675.76	105,675.61	220,351.37
Ohio	183,014.76	917,416.30	1,100,431.06
Oklahoma	158,450.34	324,052.60	482,503.44
Oregon	110,175.80	327,356.52	437,532.32
Pennsylvania	224,689.52	196,667.63	421,357.15
Puerto Rico	93,552.16	171,274.14	264,826.30
Rhode Island	92,263.84	7,137.16	99,401.00
South Carolina	149,464.96	216,367.61	365,832.57
South Dakota	114,432.44	69,739.46	184,171.90
Tennessee	164,783.88	99,697.21	264,481.09
Texas	239,364.76	775,603.88	1,014,968.64
Utah	100,503.68	76,511.64	177,015.32
Vermont	100,471.60	16,408.98	116,880.58
Virginia	161,144.56	110,985.63	272,130.19
Washington	119,515.72	222,741.35	342,257.07
West Virginia	143,813.44	102,249.22	246,062.66
Wisconsin	150,224.88	518,157.00	668,381.88
Wyoming	96,759.52	89,474.97	186,234.49
Total	6,848,750.00	14,367,998.61	21,216,748.61

The Problem and Its Significance: The State agricultural experiment stations have a dual responsibility in that (1) their research must be directed at the agricultural problems of their own individual States; and in that (2) participation in regional and national agricultural research programs is necessary if these programs are to be most effective.

Because of differences in climate, soil, and other local problems, each State has distinct problems of production and growing of crops and livestock. There are State and local problems of substitute crops, crop variety, fertilizer use, insect and disease control, storage of agricultural products, livestock production, etc. The policy of the Department has been that the initiative in work on the local problems of the State should be assumed primarily by the State, the Federal Government giving its support through the grant funds for State agricultural experiment stations. The farmers in the individual States naturally look to their State agricultural experiment stations for solution of State and local problems and in recent years have requested increased service along many lines. In the case of one State agricultural experiment station the calls for help on insect pests in the last 7 years have increased 36 percent, on animal diseases 100 percent, and on soils problems 300 percent. This is representative of the conditions at the various agricultural experiment stations throughout the country.

Illustrations of types of requests made upon the State agricultural experiment stations for additional research work to solve specific agricultural problems were furnished by the State station directors in September 1940 for the use of the Office of Experiment Stations in carrying out its designated responsibilities of coordinating research of the State agricultural experiment stations under the Federal-grant funds and of coordinating this research with similar research of the Department. Copies of a compilation of the data furnished by the State station directors are available, if desired, for the record or for members of the committee.

In addition to its responsibility to the people of its own State, each State has its obligations on the regional and national plane. Each State represents a part of the national picture as regards the programs of agricultural adjustment, soil conservation and erosion control, resettlement, flood control, rural electrification, control of pests and diseases, and any other programs extending beyond State lines. It would seem logical that the State agency, because of its accumulated facts and experience and local knowledge over a period of 50 years, could not and should not avoid active participation in developing, assembling, and interpreting facts needed in working out sound adjustments for the individual State and its varying conditions under these major national programs. The States participate in such activities as the soil survey and classification which is basic to most, if not all, programs; in cooperating with the Federal agencies to bring together, appraise, and consolidate all available facts for the improvement of agricultural adjustment programs; in carrying on new observations, experiments, and research to find, if possible, substitute agricultural enterprises where existing enterprises should be changed if soils are going to be preserved;

in adjusting livestock and farm management practices where additional pastures and hay crops or other modifications are clearly needed for soil conservation and land-use adjustment; and in cooperating through consultations and supplying factual data in connection with the national flood control, water resources, crop-insurance, and other programs. In addition to direct participation with Federal agencies, the State stations, to an increasing extent, are acting as groups by regions to provide a cooperative, coordinated attack on problems of regional and national interest.

The need from a National and State standpoint for participation on the part of each State along these lines is apparent from the fact that for the United States as a whole we must deal with approximately 775 type-of-farming areas. Even considering this many type-of-farming areas, State station representatives must adjust and adapt findings for recommendations to fit many additional combinations of soils, markets, transportation, land ownership, ability, and finances of the individual farmers.

Plan and Progress of Work: The funds appropriated pursuant to the authorizations in the Hatch, Adams, and Purnell Acts and Title I of the Bankhead-Jones Act of June 29, 1935, are warranted direct to the States upon certification of the Secretary of Agriculture that the States have complied with the terms of the Acts granting the funds. The work and expenditures under the Federal-grant funds are reviewed by a representative of the Office of Experiment Stations at each of the State stations annually as a basis for certification of the eligibility of the stations to receive the Federal-grant funds in the succeeding fiscal year.

Expenditures by the State stations of the funds received under the Adams, Purnell, and Bankhead-Jones Acts may be made only in support of research projects which have been approved in advance by the Office of Experiment Stations. A research project in the sense used is rather specific in objective and constitutes a research attack for the benefit of agriculture, largely on problems of practical importance submitted by farmers for solution.

Benefit to agriculture does not imply necessarily a complete solution and elimination of the problem. Biological factors, as well as economic factors, including social factors and agricultural geography, are constantly changing. Where there is such constant change and so many problems needing attention, maximum benefit to agriculture calls for research by specific narrow-line projects and completion or termination of the project when the specific objective is accomplished or when it is clear that the research has reached a point of diminishing returns.

Termination of work on a project depends upon the nature of the problem. On most problems of a biological character certain specific objectives may be completed or terminated. Since, however, the biological factors are extremely complex and interrelated, when the immediate objectives have been reached on the phase of the problem studied, other urgent phases may require solution for practical purposes of farmers.

Certain important objectives in the field of economics can be completed within a few years. In this field, too, the factors are continually changing and new problems or phases of problems must be studied. Other problems fundamental to agriculture in each field of science are of long-time character and complex in nature. Their completion or termination is indeterminate. The average duration of the Federal-grant project is about 10 years.

With this understanding as to plan of research attack by projects, information as to completion, termination, and continuance of existing projects is pertinent. A review during the past summer of the research programs at the State agricultural experiment stations under Federal-grant funds indicated that for the 6-year period covered by the fiscal years 1935-1940, inclusive, the projects active during the year, the projects completed during the year, and the percent of projects completed were as follows:

Fiscal year	Projects active during year	Projects completed during year	Percent completed
1935	2194	266	12
1936	2542	336	13
1937	2644	252	9
1938	2860	286	10
1939	3021	307	10
1940	3185	320	10

As an aid in the administration of the Federal-grant funds of the State agricultural experiment stations, a summary report was prepared on the projects, which received support from these funds, which were completed in 1940. Copies of this report are available, if desired, for the record or for review by members of the committee.

A review during the fiscal year of progress on the 90 percent of the projects which are still active indicates progress in the form of useful contributions for practical application to agriculture or equally important contributions toward an ultimate solution of troublesome problems through increased basic information over the broad field of agriculture, including the rural home. For example, noteworthy progress is being obtained in the control of citrus thrips, an important pest of lemons in recent years, through the development of a spray of tartar emetic and sugar by the California Experiment Station. This spray is proving more effective and less expensive than methods previously employed and is giving excellent results on thousands of acres of California citrus. Another example of a finding of importance to agriculture and possibly to medicine during the year was the isolation and identification by the Wisconsin station of the chemical compound (a coumarin derivative) that causes the "sweet clover disease" of cattle. Partially spoiled sweet clover contains large amounts of the compound. Cattle feeding on such material often bleed to death from slight wounds or

internal hemorrhages. The discovery of this novel and potent chemical may not only lead to the control of "sweet clover disease" but may prove of value in treating human diseases caused by blood clots. Experiments conducted by the Oklahoma station have established that cottonseed meal may be fed in almost any desired quantity in the dairy ration without injury so long as sufficient vitamin A is supplied. This finding is of economic importance to the entire cotton-producing area in which cottonseed meal is the cheapest and most readily available source of protein for livestock feeding. Research of the Maryland station, in cooperation with the U. S. Department of Agriculture, has resulted in the production of a new strawberry variety which is resistant to the root disease known as red stele, which in recent years has threatened the Maryland strawberry crop, the annual value of which is close to \$1,500,000.

A more detailed report of 15 pages relative to progress of active researches under Federal-grant funds during the past year is available, if desired, for the record or for review by the committee.

Project 4. Hawaii Station Act (May 16, 1928):

Objective: To provide for investigations by the Hawaii Agricultural Experiment Station looking to the establishment and maintenance of a permanent and efficient agriculture and to the improvement of the rural home and rural life in Hawaii, as authorized by the Act of May 16, 1928.

The Problem and Its Significance: Hawaii does not produce sufficient food for its population. From 60 to 65 percent of the required food supplies are imported, including such essentials as meats, dairy products, flour, and vegetables. This situation exists because Hawaii, being naturally adapted to the production of pineapple and sugarcane, has grown these crops extensively for export. There has developed in recent years a strong interest in agricultural diversification in Hawaii which has been given an impetus by increased population pressure, an increased supply of agricultural labor, and the low prices for sugar. Interest has developed at the same time in placing an increasing number of small farmers on a sound economical basis. While the agricultural economy in Hawaii is now principally restricted to two crops with production in large holdings, there are approximately 5,650 small farms of less than 100 acres each, with a total acreage of 53,300 acres, according to the 1930 Census of Agriculture. Progress in diversification and in the development of the small farms has been handicapped by lack of knowledge of the adaptation and economical production of food and feed crops under Hawaiian conditions.

Agricultural research conducted in the continental United States by the State agricultural experiment stations and the Federal Department of Agriculture has little direct practical and economic application to Hawaii because of the wide difference in such factors as soils, climate, and length of day in the islands as compared with mainland conditions.

The present agricultural economy of Hawaii, being so largely restricted to two crops (pineapples and sugarcane), is subject to the

serious disadvantage that the failure or loss of markets for even one of these crops would be disastrous. With diversified agriculture the failure of one crop or the loss of markets for it would not so completely dislocate the agricultural economy.

The distance of Hawaii from the mainland and the present dependence of this Territory upon imports for its foodstuffs would be of major concern in case of an emergency in which the islands became isolated.

The following are examples of specific types of research, in addition to the present program of the station, needed to meet problems of diversified agriculture in Hawaii: (1) the relation of local foods and diet to human health; (2) breeding of plants more suitable for Hawaiian conditions, including disease and insect pest resistance; (3) poultry breeding to develop types suitable for local conditions; (4) the development of practical measures to control insect pests and diseases which limit the practicability of developing small farms; and (5) the use of locally-grown agricultural products and byproducts, as feed for poultry, swine, and cattle, in substitution for imported concentrates.

Plan and Progress of Work: The funds appropriated pursuant to the authorization in the Act of May 16, 1928, are warranted direct to the Hawaii Agricultural Experiment Station, upon certification by the Secretary of Agriculture, for the support of research projects approved by the Office of Experiment Stations.

Progress has been made by the Hawaii Agricultural Experiment Station in solving problems of Hawaiian agriculture. Some of the wild grasses have been found to be satisfactory for livestock feeding. Balanced, economical rations have been worked out for swine to include 40 to 50 percent cane molasses or pineapple syrup. Knowledge has been gained as to the mineral and vitamin content and the value for human nutrition of some Hawaiian products, including macadamia nuts (which are an excellent source of vitamin B, and high in fat content), potatoes (which are as good a source of calcium, iron, and thiamin, and twice as good a source of vitamin C as new potatoes shipped from the mainland), opihi (a native shellfish similar to the clam, which is an excellent source of vitamin A), and 16 Filipino vegetables (which proved high in content of vitamins A, B, and C). A satisfactory method has been discovered for storing locally-grown seed potatoes so that they will be available for fall planting in Hawaii to produce a winter crop. Seed potatoes shipped in are not in condition in the fall to germinate well without special treatment. Methods have been developed for increasing the germination of four grass species (Pennisetum ciliare, Paspalum prolatum, Pennisetum setosum, and Paspalum notatum), approximately 20 percent, 39 percent, 40 percent, and 73 percent, respectively.

Tests of vaccination of chicks in the web of the wing hold promise of providing early immunity from fowl pox, thus obviating the necessity of screening the chicks from carrier mosquitoes for 7 or 8 weeks, as vaccination in the wing can be made at hatching time and the

present method of vaccination in the leg cannot be administered until the chicks are 7 or 8 weeks old. Through experimentation, it has been discovered that for each 1.01 eggs of liver fluke per gram of feces, there is one adult fluke in the infected animal, thereby making it possible to determine the extent of fluke infection and the adequacy of a drug treatment when the egg count is known before and after treatment. A drug (a mixture of hexachloroethane and kamala extract) has been developed by the Hawaii station which is highly effective in the treatment of cattle for liver flukes. Encouraging progress has been made in the introduction and development of truck crops, fruits, and nuts adapted to Hawaiian conditions, including sweet corn, cauliflower, potatoes, string beans, papaya, and litchi and macadamia nuts.

Authorization: The appropriations for the Hawaii Agricultural Experiment Station are authorized by the Act of May 16, 1928, which extends to the Territory of Hawaii the benefits of the Hatch, Adams, and Purnell Acts, under which each of the States receives \$90,000 annually for agricultural research. The Act of 1928 authorizes appropriations beginning with \$15,000 in 1930 and a series of successively increasing appropriations until 1940 and subsequent years when the amount authorized is \$90,000. Beginning with the fiscal year 1938 the full amounts authorized have not been appropriated. The following tabulation indicates the action taken in regard to this item:

<u>Hawaii</u>			
<u>Fiscal</u> <u>year</u>	<u>Authorized by</u> <u>Act of May 16,</u> <u>1928</u>	<u>Budget</u> <u>Estimate</u>	<u>Appropriation</u>
1938	\$60,000	\$60,000	\$50,000
1939	70,000	60,000	55,000
1940	80,000	60,000	60,000
1941	90,000	70,000	67,500
1942	90,000	67,500	- -

Projects 5 and 6. Alaska Station Acts (February 23, 1929 and June 20, 1936):

Objective: To provide for investigations of the Alaska Agricultural Experiment Station to improve Alaska agriculture, as authorized by the acts of February 23, 1929, and June 20, 1936.

The Problem: The problem facing the Alaska Agricultural Experiment Station is that of developing a self-sufficient agriculture, based largely on the family size farm, which will not only meet the requirements of the 71,000 inhabitants but also of the defense forces stationed there. At the present time Alaska farms produce less than 10 percent of the food consumed by the population, yet only about 15,000 acres of the 40,000,000 acres of potentially tillable land are being farmed. Research conducted in the States by the State agricultural experiment stations and the Federal Department of Agriculture is not directly applicable to Alaska conditions, for such vital agricultural factors as nature of soils, climate, and

length of day are entirely different from those in the United States. The development of a self-sufficing agriculture involves the efficient local production of livestock, dairy and poultry products, field, vegetable, and fruit crops, and forage for feed. Such developments must be based on agricultural research.

Of particular importance is the work being done in plant breeding to develop improved varieties and strains of crop plants better adapted to Alaska conditions. Already, worthwhile results have been achieved in the testing and selection of varieties and strains of fruits and forage and grain crops, but many other problems remain to be solved by scientific plant breeding. To cite some examples, winter hardiness, a character so important in Alaska, and quality are not always found in the same varieties or strains; these essential characters to be combined in one variety require scientific breeding. Ladak alfalfa appears to be an excellent introduction, yet its position as an adaptable variety or strain will remain uncertain until it is established by plant breeding.

Numerous problems of economic importance are encountered in efforts to produce poultry in Alaska. Although more than 128,000 dozen eggs are produced annually, the present local demand exceeds this amount by 4 or 5 times. Because of poultry disease and management problems now confronting the poultry raisers in Alaska, an annual replacement of about 25 percent of the flocks is necessary. All these difficulties result in poor returns for the exacting year-round work which poultry raising demands. Satisfactory solution of these problems is dependent upon further research by the Alaska station.

Significance: That a territory with so much tillable land must import 90 percent of its foodstuffs seems almost paradoxical. In the light of this, the importance of developing a self-sufficient agriculture through the production of crops particularly adapted to Alaska conditions and the improvement of such vital food enterprises as poultry and dairy husbandry and livestock production are evident.

Not so obvious, but perhaps just as important in view of the present world situation, is the long-time aspect of the possibilities of the further settlement and development of this large area, whose agricultural potentialities are at present largely unknown. The basic agricultural facts which would mean success in such an undertaking can be obtained only through research. Since experimentation requires time -- and in most cases a considerable length of time -- the research now in progress is important if results are to be available when further development of Alaska is undertaken.

Plan and Progress of Work: The funds appropriated under the Acts of February 23, 1929, and of June 20, 1936, are warranted direct to the Alaska Agricultural Experiment Station upon certification by the Secretary of Agriculture for the support of research projects approved by the Office of Experiment Stations.

The Alaska Agricultural Experiment Station has already made progress in solving some of the many agricultural problems of Alaska. For instance, pen-raised fur-bearing animals, which are now preferred over wild animals by the fur trade because of their more uniform and higher-quality pelts, have been reared with promising success at the station on a ration of 50 percent fish. Bladder stones in minks, which are fatal to these animals valued at from \$30 to \$50 each, have been prevented, on an experimental basis, according to the station, by feeding 1 percent cod liver oil regularly. In much of Alaska hay, needed for livestock and dairy production, cannot be satisfactorily cured because of humid weather during the harvest season. Preliminary results indicate that silage, especially grass and hay silage, if it can be properly stored and preserved, may be used for 75 to 80 percent of the roughage for dairy cattle feeding. To meet the storage and preservation problem, the station has demonstrated that silage can be successfully stored in an inexpensive trench silo topped with one foot of moss or peat or two feet of chopped straw. Tests on many legumes and grasses indicate that a number, such as Ladak alfalfa, perennial vetch, Siberian red clover, western rye grass, reed canary grass, and Kentucky bluegrass, show characteristics adaptable to Alaska conditions. Likewise demonstrated has been the successful and economical raising of hogs on local grain and pasture when available. Progress has been made on problems of seeding, fertilizer, and cultural treatment which will give satisfactory yields for the pea canning industry. Further research is needed to obtain satisfactory canning quality. Experiments with bees have indicated that beekeeping for honey production can be made a profitable supplemental farm enterprise in the Matanuska and Tanana Valleys if adequate honey sources, such as clover, alfalfa, and other appropriate flowering plants, can be grown.

Authorization: The Alaska Station Act of February 23, 1929, extends the benefits of the Hatch Act to the Territory of Alaska and authorizes an annual appropriation of \$15,000 for this purpose.

The Alaska Station Act of June 20, 1936, extends to Alaska the benefits of the Adams and Furnell Acts and authorizes appropriations beginning at \$5,000 in 1937 and increasing each year until 1947 when the authorized appropriation is \$37,000, which is one-half of that provided for each State under the Adams and Furnell Acts. Beginning with the fiscal year 1939, the full amounts authorized have not been appropriated. The following tabulation indicates the action taken in regard to this item:

<u>Alaska</u>			
<u>Fiscal</u> <u>year</u>	<u>Authorized by</u> <u>Act of June</u> <u>20, 1936</u>	<u>Budget</u> <u>Estimate</u>	<u>Appropriation</u>
1939	\$10,000	\$10,000	\$8,750
1940	12,500	10,000	8,750
1941	15,000	10,000	10,000
1942	17,500	10,000	- -

Project 7. Puerto Rico Station Act (March 4, 1931):

Objective: To provide for research by the Puerto Rico Agricultural Experiment Station to improve the agriculture of Puerto Rico, as authorized by the Act of March 4, 1931.

The Problem and Its Significance: Puerto Rico has a population of 560 people per square mile, which is greater than that of such generally recognized densely populated countries as Japan, Italy, and Germany. This part of the United States is almost entirely dependent upon agriculture for its income, but with its dense population there is less than three-fourths acre of arable land per person. Puerto Rico, therefore, with population-pressure problems, with a shortage of arable land, and with agriculture almost the sole source of income, needs research to aid in the solution of its agricultural problems.

One problem is the development, through tropical animal industry research, of a better balanced diet for the population. Puerto Rican rations are long on fats and carbohydrates and short on protein, minerals, and some of the vitamins. Information is lacking on the breeding, feeding, and management of chickens, turkeys, ducks, geese, pigs, and other domesticated animals as sources of protein foods for the population; on milk production, including the breeding and feeding of dairy cows and milk goats; on milk goats to develop a type best suited to Puerto Rican conditions as a source of milk for the children of Puerto Rico who do not now have enough of this food for their healthy development; on the diseases and parasites of farm animals which are more destructive in the tropical climate of Puerto Rico than they are in the continental United States.

Other examples of specific problems are the development of fruits and vegetables suitable for export and for improving the food supply of individual farms; improvement in the farm credit and farm debt situation through comprehensive analysis; and conservation of the Puerto Rican soil, which is the basis for the livelihood of the island.

Plan and Progress of Work: The funds appropriated pursuant to the authorization in the Act of March 4, 1931, are warranted direct to the Puerto Rico Agricultural Experiment Station upon certification by the Secretary of Agriculture for the support of research projects approved by the Office of Experiment Stations.

The current work of the Puerto Rico Agricultural Experiment Station is yielding results of benefit to Puerto Rican agriculture. Progress is being made on the development of a high-yielding type of field corn in an effort to make production of this crop profitable in Puerto Rico. A hybrid has been developed which produces twice the yield of ordinary field corn under Puerto Rican conditions. If by improved cultural treatment this yield can be further increased, corn could probably be made an economic enterprise for Puerto Rico, which would have a beneficial effect upon the development of the livestock industry, with a consequent improvement of the Puerto Rican diet, which is lacking in

proteins. Through breeding and selection, the yield of native white beans has been increased 45 percent, thus extending the possibility of establishing this crop as a successful agricultural enterprise. The development of a cucumber resistant to downy mildew and of satisfactory size and yield is significant in that this vegetable is becoming an important export crop. Encouraging progress is being made in the establishment of a beneficial parasite to control the mole cricket, which is one of the main pests of many Puerto Rican crops. An Arabian coffee has been found which is immune to attack by the coffee-leaf miner, thereby opening up the possibility of breeding this coffee with commercial varieties, to develop resistant strains of satisfactory commercial coffee. The causative agent of a root disease of coffee has been determined, thus clearing the way for studies on the control of this troublesome disease.

Authorization: The Puerto Rico Station Act of March 4, 1931, extends to Puerto Rico the benefits of the Hatch, Adams, and Purnell Acts and authorizes successively increasing appropriations each year until the amount reaches \$90,000, the same as each State receives under the Hatch, Adams, and Purnell Acts. Beginning with the fiscal year 1939, the full amounts authorized have not been appropriated. The appropriation for the Puerto Rico Agricultural Experiment Station is now one year in arrears of the authorization, as shown in the following tabulation of action taken in regard to this item:

Puerto Rico

Fiscal year	Authorized by Act of March 4, 1931	Budget Estimate	Appropriation
1939	\$45,000	\$45,000	\$42,500
1940	50,000	45,000	45,000
1941	60,000	50,000	50,000
1942	70,000	50,000	- -

(b) ADMINISTRATION OF GRANTS TO STATES
AND COORDINATION OF RESEARCH

Appropriation Act, 1941 \$161,735
Budget Estimate, 1942 161,735

PROJECT STATEMENT

Project	1940	1941 (Estimated)	1942 (Estimated)
Administration of Federal-grant funds for State and Territorial Agricultural Experiment Stations; coordination of research work of the State and Territorial stations, and coordination of this research with that of the Department; coordination of the research work of the Department; and administration of Department insular stations	\$161,259	\$161,735	\$161,735
Unobligated balance	476	- -	- -
Total appropriation	161,735	161,735	161,735

WORK UNDER THIS APPROPRIATION

General. The Office of Experiment Stations (a) represents the Department in the administration of the Acts of Congress making appropriations for the support of State and Territorial agricultural experiment stations in the several States, Hawaii, Alaska, and Puerto Rico (Hatch Act, Adams Act, Purnell Act, and the Hawaii, Alaska, and Puerto Rico Station Acts); (b) coordinates the research work of the State and Territorial agricultural experiment stations and coordinates this research with that of the Department; (c) coordinates the research of the Department; and (d) administers the Federal agricultural experiment station in Puerto Rico.

Administration of Federal-grant Funds for State and Territorial Agricultural Experiment Stations: Administration of the Acts granting funds to States and Territories involves supervision of the funds, close advisory relations with the stations as to research for which the funds are expended, annual examination of the work and expenditures of each station, coordination of the research activities of the Department with those of the State stations, preparation and issuance of "Experiment Station Record" and other reports, and preparation of the annual report to Congress on the work and expenditures of the stations as required by law.

The Federal funds paid to the States and Territories are largely expended on research projects submitted to the Office of Experiment Stations for advisory suggestions and approval in advance of expenditures. Programs of projects with proposed expenditures under the Federal funds are submitted by each station for review and approval at the beginning of each fiscal year. Changes and adjustments in work to best meet State needs are submitted throughout the year. There were 2,218 active Adams and Purnell projects in 1940, of which 364 were new or revised during the year.

To carry out the provisions of the Federal Acts a representative, or representatives, of the Office of Experiment Stations visits each of the 50 State stations at least once annually and spends four to twenty-one days reviewing the expenditures and the research under way. In addition, staff members cooperate as specialists with individual stations and regional groups in the consideration of research programs for special fields.

As explained under the heading "Special research fund, Department of Agriculture", the Office also has the responsibility for the administration of the payments to States authorized by Title I of the Bankhead-Jones Act of June 29, 1935.

Coordination of Research Work of the State and Territorial Stations and Coordination of this Research with that of the Department: Coordinating the research of the Department of Agriculture with that of the State and Territorial stations and coordinating the research work among State stations is constantly in mind when the proposed research projects under Federal funds are reviewed for approval and when the work and expenditures of each station are reviewed and discussed with the State station directors and research staffs. Through personal conferences and committees having to do with research, close advisory relations are maintained with bureaus of the Department. Every opportunity is taken to promote effective cooperation between and among the State stations and between the State stations and the Department. During the fiscal year 1940 there were approximately 1,400 new or revised formal memoranda of understanding and agreements covering approximately 1,200 cooperative research undertakings between State stations and the bureaus of the Department which were reviewed, approved, and filed by the Office of Experiment Stations. The number of formal agreements and understandings entered into by individual stations ranged from 7 to 53 with an average of 29 for each State.

"Experiment Station Record" was established in 1889 as a part of the Federal-State joint participation in establishing and maintaining agricultural experiment stations. Its purpose is to make available promptly to staff members of all stations and the Department abstracts of current published results of research in this and other countries as an aid in planning research, avoiding duplication, and coordinating research effort. A total of about 6,800 such abstracts are prepared, edited, and published annually, involving translations from a number of the principal foreign languages. The abstract volumes are supplemented by indexes and a combined index is published for each ten volumes. Few, if any, of the stations have

all the publications available, and the abstracting done by the Office of Experiment Stations avoids the necessity of duplicate abstracting by the several thousand research workers.

As a central agency for the State stations, the Office of Experiment Stations compiles lists of research projects in special fields, maintains an up-to-date list of the organization and personnel of the several stations and publishes a revised list annually, issues a monthly mimeographed list of new station publications, and prepares other lists and compilations of information.

The Office answers a large volume of inquiries from all parts of the world regarding the organization, personnel, relationships, and work of the State stations.

Coordination of the Research Work of the Department: Assistance in coordinating the research work of the Department of Agriculture is accomplished through advising the bureau chiefs and the Secretary of Agriculture with regard to the coordination and correlation of proposed research. Special attention is given to adjustments of closely related research in different bureaus and to the coordination and integration of any new research with existing activities of the Department. The Chief of Office as Director of Research participates in the preparation of research programs and budget estimates, especially in regard to coordination and cooperation, and serves on some 17 committees having to do primarily with policy, coordination, and cooperation in research.

The Office of Experiment Stations is responsible for the development, for presentation to the Secretary, of the programs of work to be undertaken by the bureaus of the Department under special research projects and at the special research laboratories in the major agricultural regions provided for by Title I of the Bankhead-Jones Act of June 29, 1935; for assistance in the development of cooperation with the State experiment stations, individually and by regions, in connection with the research of these laboratories; for general assistance in planning, directing, and supervising the work under the Special Research Fund; and for the general administration of the funds. To accomplish these broad purposes effectively and economically without the establishment of a separate unit, the work is handled by staff members of the Office who are also engaged in the administration of the Federal-grant funds for the State experiment stations and in the coordination of the research under these funds between stations and with the Department.

The Office now has additional responsibility and additional work in connection with the task of planning and coordinating the farm products utilization program of the four new regional research laboratories authorized by Section 202 of the Agricultural Adjustment Act of 1938 and of coordinating the work of the Department and the work of the State stations with the program of these laboratories. Under the provisions of Section 202, the Secretary is authorized and directed to use annually for the research program of these laboratories not to exceed four million dollars, one fourth of which shall be allocated to each laboratory. In connection with this

program to develop new scientific, chemical, and technical uses for farm products, "the Secretary is authorized and directed to cooperate with other departments or agencies of the Federal Government, States, State agricultural experiment stations, and other State agencies and institutions, counties, municipalities, business or other organizations, corporations, associations, universities, scientific societies, and individuals, upon such terms and conditions as he may prescribe."

To develop and carry forward this broad program on a Department level, the Secretary has assigned the operating functions of these laboratories to the Bureau of Agricultural Chemistry and Engineering and has provided (1) that the Director of Research shall be responsible for the planning and coordination of the program, whether conducted by the Bureau of Agricultural Chemistry and Engineering or other bureaus of the Department; (2) that expenditure of the funds for these laboratories shall be made on the basis of projects which have been reviewed and approved by the Director of Research and Chief of the Office of Experiment Stations. Acting as a central clearing house of information as to the program of each State experiment station and as to records of cooperation between the bureaus of the Department and the State stations, the Office staff naturally and necessarily will be called upon continuously for information and assistance.

Administration of Department Insular Stations: Administration of the Federal experiment station in Puerto Rico includes approval of research projects, budgets, and expenditures; the review, editing, and approval of publications; and general administrative direction of the activities of the station. In recent years the Office has had the responsibility of coordinating the work of the Federal station and that of the station of the University of Puerto Rico, in accordance with the provisions of the Act of March 4, 1931, under which the latter station now receives the benefit of funds provided by the Hatch and supplemental Acts.

The Department formerly maintained agricultural experiment stations in Hawaii, Alaska, Guam, and the Virgin Islands. The Office answers a large volume of inquiries regarding agricultural conditions and possibilities in these possessions, as well as in Puerto Rico.

(c) INSULAR EXPERIMENT STATIONS

Appropriation Act, 1941	\$83,000
Budget Estimate, 1942	<u>83,000</u>

PROJECT STATEMENT

Project	1940	1941 (Estimated)	1942 (Estimated)
Federal Experiment Station in Puerto Rico	\$82,915	\$83,000	\$83,000
Unobligated balance	85	--	--
Total appropriation	83,000	83,000	83,000

WORK UNDER THIS APPROPRIATION

Objective: The conduct of research for the continental United States which can best be carried on under the tropical conditions of Puerto Rico, and assistance in solving the agricultural problems of Puerto Rico.

The Problem and Its Significance: The agricultural experiment station maintained by the Department at Mayaguez, Puerto Rico, since 1902, was originally established to aid in the improvement and diversification of agriculture in the island.

Since 1935, the Agricultural Experiment Station of the University of Puerto Rico has been receiving gradually increasing Federal grants for agricultural research under the Puerto Rico Station Act of 1931. In accordance with the provisions of this Act, the work of the Federal and the University of Puerto Rico stations is coordinated. The Federal grants to the University of Puerto Rico station are enabling it to gradually assume increasing responsibility for needed research on the problems of concern to Puerto Rico alone, and the Department station is thereby able to serve more as a Federal tropical outpost station where bureaus of the Department may be provided with facilities for study, in cooperation with the station, of problems requiring or profiting by research under tropical conditions. During the present fiscal year the Bureaus of Animal Industry and Entomology and Plant Quarantine, the Forest Service, and the Soil Conservation Service of the Department of Agriculture, the Puerto Rico Reconstruction Administration of the Department of the Interior, and the Government of Puerto Rico have maintained activities at Mayaguez, using the facilities of the experiment station.

Through its experience and work with tropical plants and problems, the Puerto Rico station has a body of information on the production of these plants which is steadily being augmented and which is of value to the Department in assisting Latin American countries to grow products which the United States needs.

Plan and Progress of Work: The work of the Puerto Rico station includes the subjects of (a) quinine investigations, (b) insecticidal plants, (c) vegetable crop plants, (d) entomological investigations, (e) vanilla, (f) essential oils, (g) bamboo, (h) land use, and (i) introductions of tropical and subtropical plants of possible value in continental United States as well as under tropical conditions. The work undertaken and the progress made is discussed briefly in the following paragraphs:

- (a) Quinine Investigations. - Work was undertaken in 1935 on cinchona, the tree from whose bark quinine is extracted, to ascertain the possibilities of having a nearby source of this drug for the United States. There is no other drug which can be used as effectively in treating intermittent fevers, such as malaria. At the present time practically all the quinine used by the United States, both for the civilian population and the military forces, is obtained from the Dutch East Indies. The development of a close source of supply of quinine is particularly important for this country in case the present markets should be closed.

When the work was started little information was available as to the growing methods used in the Dutch East Indies. The station had first to secure introductions of quinine-producing plants and find out whether quinine would grow in Puerto Rico and, if so, what conditions were favorable for the development of the plants. It was found that the plants required unusually good soil drainage and protection from wind. The station has been successful in growing the plants and now has 652 trees of different species established in four places with altitudes varying from 1,000 to 3,000 feet. There are 441 trees, 1 to 2 feet in height, of the higher-yielding species, Cinchona ledgeriana, and several thousand small seedlings of various species in nursery beds.

From the bark of one tree at the station 8.5 percent quinine was obtained, which is a good commercial yield. The average yields from the station plantings to date are between 5 and 6 percent. This is not as high as the average for the Javanese trees, which runs possibly from 8 to 10 percent. The quinine content is greater for older trees, however, and the earliest trees planted at the Puerto Rico station are now only 7 years old.

The quinine plant material and facts as to production assembled are already being put to use in the interest of developing a source of quinine in the Americas. Assistance by the station staff, through the Department of Agriculture and the State Department, has been rendered to Latin American countries.

Difficulties encountered in establishing quinine trees in Puerto Rico include a fungous disease which causes damping off in seed beds, a canker, a fungous disease which affects the root and crown, and a virus disease. To the best of our knowledge, similar difficulties, in greater or less degree, are involved in quinine production elsewhere. The work on quinine is now directed toward controlling these diseases, the selection and breeding for higher-yielding strains of plants, and the determination of optimum cultural treatments and economic possibilities.

- (b) Insecticidal Plants.-- The residues on agricultural products from poisonous sprays, such as lead arsenate, used for controlling insects are often a menace to the health of the consumer. The insecticidal material rotenone, which is obtained principally from tropical plants, is toxic to many insects but is harmless to human beings and domestic animals. This material has made possible the development of insecticides which do not leave harmful residues on the edible portions of agricultural products. These insecticides have been effective in controlling a number of different insects, and the indications are that their use will be extended to control other insect pests. An additional advantage in the use of these insecticides is that they do not cause toxicity in the soil as is the case when inorganic insecticides are used in large quantities. The value of rotenone as an insecticide is now firmly established, and its use is increasing, but world supplies are not adequate, it is expensive, and at present it occurs in nature at low concentrations.

Over 300 species of tropical insecticidal plants have been introduced and tested. The most promising species commercially belong to the general Lonchocarpus, Derris, and Tephrosia. One of the strains of Lonchocarpus grown at the Puerto Rico station yielded 20.6 percent rotenone, this being the highest yield so far recorded. Other strains of Lonchocarpus at the station have yielded from 6 to 14 percent rotenone. The higher rotenone-yielding plants of Lonchocarpus are being multiplied as rapidly as possible.

An experiment with Derris plants demonstrated that by growing them on small trees, which serve as trellises, the yield of Derris roots (the part of the plant highest in rotenone content) is increased 75 percent as compared with the yield obtained from plants grown spreading over the ground in the usual commercial method used in the Malay States. Agronomic tests on spacing, size of cuttings, fertilizers, age of harvest, and varieties, and experiments to determine the effect of certain combinations of soil, elevation, and rainfall on rotenone content and yield are now being conducted on Derris.

As a result of the preliminary work of the Puerto Rico station on insecticidal plants, one commercial planting of 3.1 acres and another of 2.2 acres of Lonchocarpus and a commercial planting of 2.3 acres of Derris have been established in Puerto Rico.

- (c) Vegetable Crop Plants.— The Puerto Rico Experiment Station, with its 12 months of growing weather and complete freedom from frost, can raise annually from 2 to 4 crops of a number of vegetables. In Puerto Rico, therefore, it is possible to greatly accelerate the breeding programs of vegetables which can be grown in the summer in the continental United States. The improvement of these vegetables is of advantage to Puerto Rico in the winter production of crops for shipment to the mainland.

Breeding work has been successfully conducted in Puerto Rico with sweetpotatoes, which do not flower naturally in the continental United States and therefore limit the opportunity for cross-pollination. As a result of this work, the seed of new sweetpotato varieties has been made available to farmers in the continental United States. Sweet-corn varieties have been developed by the Puerto Rico station which are adapted to the warm climates of Puerto Rico, Hawaii, and such States as California, Louisiana, Mississippi, and Florida. Work on the winter production of seed of continental corn varieties has been handicapped by insect pests and diseases, but progress is being made in overcoming these problems.

- (d) Entomological Investigations.— In the work of the Puerto Rico station, involving the introduction, testing, and improvement of many different plants of promising economic importance, it was found that a number of them were subject to severe damage by insect pests. Apparently over a period of years a number of insect pests have made their way into Puerto Rico from North and South America, but the predator insects which control them in their places of origin were not present in Puerto Rico. In 1936 the importation of beneficial insects from the countries of origin of various crop pests was initiated to establish a biological control of some

of the Puerto Rican insect pests. This method of control is much cheaper than artificial means, such as spraying.

The Amazon fly, which attacks the moth borer of sugarcane and corn, was imported from Brazil. The results to date indicate that as high as 45 percent of the borers which attack corn and sugarcane have been parasitized and killed by the Amazon fly. An insect which parasitizes the mealy bug of pineapples has been successfully colonized and established in Puerto Rico, considerably reducing the mealy bug pest of pineapples. Another parasite has been imported and established which minimizes the destructiveness of the palm mealy bug. Predators on insects of the papaya have been established. Beneficial insects have been introduced which prey upon the scale insect which causes severe setbacks in growth and production of cocoanut trees. Predatory insects which parasitize the scale insects of bamboo have been introduced.

As these beneficial insects indicate their value of controlling insect pests in Puerto Rico, shipments are made of them to the continental United States, Hawaii, and, on a cooperative exchange basis, to Latin American countries. Ten species have been sent to the continental United States, and six species have been sent to Haiti, Cuba, Santo Domingo, Trinidad, Barbados, and Colombia. The introduction of the Amazon fly, which parasitizes the moth borer of sugarcane, is expected to be of particular value to the sugar-growing areas of Louisiana and Florida.

The work of the station on the utilization of bamboo was handicapped by the powder post beetle. Research at the station has shown that certain species of bamboo are highly resistant to this insect and that even susceptible species, if properly cured, tend to avoid injury by this beetle. The method of curing, developed by the station, consisted of cutting well-matured bamboo culms and allowing the leaves to remain on the culm several days to exhaust the moisture and some of the carbohydrates. Soaking the bamboo in water for 4 to 6 weeks to reduce the carbohydrates also has been found effective in preventing attacks by the powder-post beetle.

- (e) Vanilla.— The development of crops of high value per acre is of particular importance to Puerto Rico, inasmuch as there is a population of 560 people per square mile, there is less than three-fourths acre of arable land per person, and agriculture is the main source of income. Efforts at establishing crops of high value per acre are often handicapped by the large areas of Puerto Rican soils which are severely eroded and low in nutrients. Vanilla seemed to offer many advantages in meeting this situation. The plants are well adapted to hillside cultivation; they do not utilize great amounts of nutrients from the soil; and money returns per acre are as much as \$900 to \$1,200 under ordinary prices. The continental United States is a promising market for vanilla, its imports in 1939 being over 1,000,000 pounds of vanilla beans, at a cost in excess of \$3,500,000.

A previous attempt by several planters in the 1920's to establish vanilla in Puerto Rico was abandoned after the hurricane of 1928, no

doubt because of difficulties with a root-rot fungous disease. Since 1935, the Puerto Rico Station, whose work on vanilla is in cooperation with the Government of Puerto Rico, has introduced into the island and developed planting stocks of vanilla. It has also attacked the problem of this root-rot fungus. This disease may affect from 50 to 90 percent of the vanilla vines in a planting. Since vanilla is an orchid with a semi-terrestrial habit, it was thought that the question of aeration of the roots might be significant. The research demonstrated that root rot of vanilla may be practically eliminated by better aeration of the roots, which can be effected by planting in gravel. This finding gives every indication of removing an important limiting factor in the production of vanilla in Puerto Rico.

Improvements have been made on the accepted method of processing vanilla. The method now used consists of repeatedly exposing the green beans to sunlight for a number of days and the sweating of the beans with heat absorbed from sunlight. The cheaper and more efficient method developed by the station, in cooperation with the Bureau of Agricultural Chemistry and Engineering, consists of killing the beans by a gas, such as ethylene, or by low freezing temperatures, and sweating the killed beans in electric ovens at constant temperatures. In addition to reducing curing costs, this method results in a more standardized product and a marked decrease in losses from mold. Progress has been made in standardizing methods for analyzing vanillin, the distinguishing chemical ingredient of vanilla.

As a result of the work of the Puerto Rico Station, the methods developed for the processing of vanilla are more efficient than those used in such older vanilla-producing countries as Mexico, Guadeloupe, and the South Sea Islands. Largely as a result of the preliminary work of the Puerto Rico Station, there are now 420 acres of vanilla planted in the island for commercial production.

(f) Essential Oils.— The Puerto Rico station is furnishing technical direction for research on essential oils, conducted in cooperation with the Government of Puerto Rico, to provide new agricultural crops of high value per acre. The studies so far have been confined to the production of oils of lemon grass, which is used to perfume toilet preparations; of citronella grass, from which menthol is made; and ylang-ylang, which is used for perfume.

The work conducted at the station has demonstrated that allowing lemon grass to mature at the end of five or six months gives larger yields per acre per month and at less cost than harvesting in three or four months. Fertilizer experiments with this crop have determined that the application of nitrogen will yield increases in grass tonnage and oil per acre, but the increased production is not great enough to offset the cost of the fertilizer. Studies have developed the fact that distilling the oil from lemon grass over salt water rather than fresh water gives a better quality and larger percentage of oil. Distilling the grass over salt water has the added advantage that the pulp is thereby made more palatable for livestock.

A sample of lemon-grass oil produced at the station was submitted for analysis to a commercial house in the United States. The commercial house replied in part as follows:

"We have completed our analysis of the sample of lemon grass oil and are glad to inform you that we were favorably impressed with its quality. When it is convenient, we wish that you would let us know how large a quantity of this type of lemon grass oil is available for sale in Puerto Rico and whether or not there is any possibility of its production being increased.

"This is a good commercial quality lemon grass oil with an agreeable clean odor free from weedy character."

The same firm made a favorable report upon ylang-ylang oil produced at the station.

- (g) Bamboo Investigations. - Puerto Rico is lacking in materials at low cost which can be used by the population for farm structures, furniture, and handicrafts. If possible, such materials should be made available through crops which will yield high material values per acre and will fit in with other land uses to provide maximum conservations of the soil. These facts are obvious when it is realized that there is less than three-fourths acre of arable land per person and that agriculture is the main source of income in Puerto Rico.

On the basis of developments in other countries, bamboo holds special promise for Puerto Rico. Thirty-one species and varieties of bamboo have been imported. The most promising types have been multiplied through a new technic developed by the station to provide rapid propagation. As explained under the head "Entomological Investigations" above, varieties resistant to the powder-post beetle have been found and a method has been devised for treating susceptible varieties to avoid attacks of boring insects. The station, through studies in cooperation with the government of Puerto Rico, has demonstrated that bamboo may be successfully used for the construction of chairs, beds, tables, desks, picture frames, boxes, and small farm buildings. These developments hold promise of providing a means of raising the standard of living of rural families.

- (h) Land Use. - With less than three-fourths acre of arable land per person, the maximum practicable use of hill lands is imperative. In the development of such maximum practicable use, the problems of Puerto Rico may differ materially from those of the continental United States. In the development of its lands and research projects, the station was conducting studies on soil-erosion and soil-moisture control prior to initiation of investigations in this field in Puerto Rico by the Soil Conservation Service. These studies, which concern the adaptation of principles developed to the individual crops, production, and slopes, are now carried on in cooperation with the Soil Conservation Service.

Earth dams of economical construction have been built between steep-sided valleys on the station property and have demonstrated their

efficiency in conserving water for irrigation and in the control of flood waters. It was found that wide bench terraces could be constructed on steep-sided hills, but the cost ran as high as \$700 per acre. Narrow bench terraces, however, which would be suitable for vanilla culture, were constructed for as little as \$20 per acre. For lands of not more than 16 percent grade, Mangum terraces were found to be economically feasible and extremely valuable for erosion control. For tree crops on slopes greater than 16 percent, contour canals were constructed for less than \$15 per acre and have proved highly efficient in lessening the volume and velocity of run-off water. In general, it was found that the selection of the proper crop for sloping land and the maintenance of vegetation is even more important than artificial devices in checking soil erosion. Best results in controlling erosion were obtained by the selection and maintenance of proper plantings in combination with the use of artificial devices.

- (i) Plant Introductions. - The Puerto Rico Agricultural Experiment Station, in cooperation with the Bureau of Plant Industry, has introduced more than 6,000 species of plants of possible value to Puerto Rico and the continental United States. The permanent plantings include over 1,600 perennial species, which are said to comprise the largest collection of tropical plants in the Western Hemisphere. The introductions of quinine and insecticidal plants have already been mentioned in the foregoing statements of work as to their potentialities as new crops. Mango varieties have been introduced from India, Indo-China, the Philippines, Martinique, Haiti, Trinidad, and Brazil. There is evidence that mangoes can be produced profitably in Puerto Rico. Mangosteen plants were introduced but could not be grown successfully under Puerto Rican conditions until research at the station showed that the addition of yeast extract to the plants would produce normal growth. This result clears the way for the economic production of mangosteen fruits in Puerto Rico.

The plants of possible economic importance introduced by the Puerto Rico station include vanilla, nutmeg, cinnamon, cloves, 38 species of industrial bamboo, teakwood, Venezuelan mahogany, 36 species and varieties of coffee, 4 different species of tung oil trees, sugarcane varieties, forage crop species, plants producing essential oils, and numerous drug plants. Tests are being conducted on many of these plants to determine their adaptability to Puerto Rican conditions and their economic possibilities.

SUPPLEMENTAL FUNDS

Direct Allotments

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Conservation and Use of Agricultural Land Resources (New Uses and Markets for Farm Commodities, Regional Laboratories):</u> Planning and coordination of the program of the regional research laboratories authorized by Section 202 of the Agricultural Adjustment Act of 1938	\$4,901	\$17,000	\$20,000
<u>Payments for Agricultural Adjustment:</u> Experimentation in the propagation and breeding of tropical plants and studies of domestic animal parasites (in lieu of sugar processing tax funds)	635	--	--
<u>Special Research Fund:</u>			
Administration of payments to States under Title I, Bankhead-Jones Act of June 29, 1935	27,847	28,000	24,000
Administration, including the planning, programming, and coordination, of special research projects authorized by Title I, Bankhead-Jones Act of June 29, 1935	2,970	14,300	13,300
Administration, including the planning, programming, and coordination of special research regional laboratories authorized by Title I, Bankhead-Jones Act of June 29, 1935	282	8,200	8,200
Total, Special Research Fund ...	31,099	50,500	45,500
Total, Supplemental Funds (Direct Allotments)	36,635	67,500	65,500

(d) TOTAL, OFFICE OF EXPERIMENT STATIONS

CHANGE IN LANGUAGE

The estimates propose the elimination of the following clause in the last or "Total" paragraph of the language under the Office of Experiment Stations:

"and not to exceed \$750 shall be available for the purchase of motor-propelled and horse-drawn passenger-carrying vehicles necessary in the conduct of field work outside the District of Columbia".

It is not believed that authority for the purchase of a passenger-carrying vehicle in the fiscal year 1942 will be necessary.

SPECIAL RESEARCH FUND, DEPARTMENT OF AGRICULTURE

Appropriation Act, 1941	\$1,400,000
Budget Estimate, 1942	<u>1,200,000</u>
Decrease	<u>200,000</u>

PROJECT STATEMENT

Projects	1940	1941 (estimated)	1942 (estimated)	Decrease
1. Administration of payments to States under Title I, Bankhead-Jones Act	\$27,847	\$28,000	\$24,000	- \$4,000 (1)
2. Special research projects, Department of Agriculture	650,487	672,000	476,000	-196,000 (2)
3. Special research laboratories in major agricultural regions ..	696,240	700,000	700,000	--
Unobligated balance	25,426	--	--	--
Total appropriation ..	1,400,000	1,400,000	1,200,000	-200,000

DECREASES

The reduction of \$200,000 proposed in this item for 1942 consists of:

- (1) A decrease of \$4,000 in the amount available for the administration of the \$2,400,000 of Federal-grant funds provided under Title I of the Bankhead-Jones Act of June 29, 1935, for the State agricultural experiment stations. This will involve a reduction in the assistance which will be given the State agricultural experiment stations, particularly in regard to special problems which may arise at individual stations. A reduction will be made equivalent to the full time of one person assigned to this function and operating expenses will be curtailed.
- (2) A decrease of \$196,000 in the amount available to the Department for the solution, through research, of special problems basic to agriculture. This reduction will be met by the curtailment of the program of special research projects by discontinuance of the work of 3 major projects, the objectives of which would probably not be reached for some years; discontinuance of 3 projects upon the completion at the end of the present fiscal year of the phases now being studied; discontinuance at the end of this fiscal year of 4 projects which would

probably have been concluded in the next fiscal year; deferment of objectives on a number of the remaining projects by a reduction in allotments affecting perhaps 27 projects; and elimination of the small reserve formerly held for undertaking during the fiscal year research on emergency problems which might arise.

The reduction will involve discontinuing, under this fund, the services of 11 employees in the Departmental service and 24 in the field service.

CHANGE IN LANGUAGE

The estimates include a proposed addition in the language of this item, to be inserted at the end immediately after the figure of the total amount of the appropriation:

of which amount \$700,000 shall be available for the maintenance and operation of research laboratories and facilities in the major agricultural regions provided for by section 4 of said Act.

Section 4, Title I, of the Bankhead-Jones Act, approved June 29, 1935, provides that one-half of the appropriation for the Special Research Fund "shall be used by the Secretary for the establishment and maintenance of research laboratories and facilities in the major agricultural regions, at places selected by him and for the prosecution, in accordance with section 1, of research at such laboratories."

The proposed change in language provides for maintaining in 1942 the same amount as was authorized under the appropriations for each of the fiscal years 1939, 1940, and 1941 for the nine regional laboratories which have been established. Without this change in language, \$100,000 which is half of the decrease estimated, would automatically be applied as a reduction against the part of the Special Research Fund allocated to regional laboratories.

WORK UNDER THIS APPROPRIATION

General. Section 4, Title I, of the Bankhead-Jones Act (approved June 29, 1935) provides that 40 percent of the funds appropriated in any one fiscal year pursuant to that Title shall constitute the "Special research fund, Department of Agriculture", and shall be available for (1) administration of the provisions of the Act authorizing payments to States, Hawaii, Alaska, and Puerto Rico for research to be conducted by agricultural experiment stations; (2) special research projects approved by the Secretary of Agriculture and conducted by such agencies of the Department of Agriculture as the Secretary may designate or establish; and (3) the establishment and maintenance of research laboratories and facilities in major agricultural regions of the United States and the prosecution of research at such laboratories. Section 1 of the Act specifies that the work conducted under the Special Research Fund shall be "research into

laws and principles underlying basic problems of agriculture in its broadest aspects; research relating to the improvement of the quality of, and the development of new and improved methods of production of, distribution of, and new and extended uses and markets for, agricultural commodities and by-products and manufactures thereof; and research relating to the conservation, development, and use of land and water resources for agricultural purposes."

Title I of the Bankhead-Jones Act authorizes appropriations for the Special Research Fund as follows: \$400,000 for the fiscal year 1936, \$800,000 for 1937, \$1,200,000 for 1938, \$1,600,000 for 1939, and \$2,000,000 for 1940 and for each succeeding fiscal year. The full amounts authorized were appropriated through the fiscal year 1938. The appropriation was \$1,400,000 for each of the fiscal years 1939, 1940, and 1941. The estimate for 1942 is \$1,200,000, of which \$24,000 is for administration of payments to states provided under Title I of the Act, and, under the amended authority recommended in the Budget Estimates for 1942, \$476,000 is for special research projects in the Department and \$700,000 for special research laboratories in major agricultural regions.

Project 1. Administration of Payments to States under Title I, Bankhead-Jones Act:

Objective: The administration of the provisions of the Bankhead-Jones Act of June 29, 1935, which authorize Federal-grant funds (\$2,400,000 estimated for 1942) for the States, Hawaii, Alaska, and Puerto Rico for agricultural experiment stations and which require that an equal amount be furnished by the various States, Territories, and Puerto Rico.

The Problem and Plan of Work: The administration of the provisions of Title I of the Bankhead-Jones Act of June 29, 1935, which authorize payments for agricultural experiment stations, is conducted along the same general lines as that of the previous acts granting funds to the State experiment stations for agricultural research (Hatch, Adams, and Furnell Acts). This involves:

(a) Critical examination and approval of research projects in advance of the expenditure of funds. There were 967 active Bankhead-Jones projects in the fiscal year 1940, of which 189 were new or revised.

(b) Review in the field of the work and expenditures under this fund at each station annually, as a basis for certifying the eligibility of the station to receive allotments from the fund.

(c) Assistance in coordination of the research under this Federal-grant fund between the stations and with the research of the Department of Agriculture.

(d) Reporting annually to the Secretary and the Congress on the work and expenditures under this Federal-grant fund.

(e) The maintenance of close advisory relations with the State stations on technical and administrative matters pertaining to their research programs and station organization.

Administration of the payments to States authorized by the Bankhead-Jones Act differs from administration of the other Acts on a number of points, including the following:

(a) No allotment of Bankhead-Jones funds can be made to a State, Territory, or Puerto Rico in excess of the amount the State, Territory, or Puerto Rico makes available from other than Federal funds for research during the year. The other Acts do not require the Federal funds to be offset by the States. Enforcement of this provision requires, not only annual administrative examination of the work and expenditures under the allotments under the Bankhead-Jones Act, but also annual administrative examination of the work and expenditures under an equal amount of funds made available by the States from other than Federal sources and advanced for offset credit. In 1941 it will be necessary to examine the work and expenditures made under the Bankhead-Jones allotments totaling \$3,400,000 and to examine State accounts also totaling \$2,400,000.

(b) The Bankhead-Jones funds for the State agricultural experiment stations are apportioned on the basis of rural population. The Federal-grant funds for these Stations provided by previous Acts are on the basis of an equal amount for each State.

(c) As a part of their research offset, the States, Territories, and Puerto Rico may include expenditures during the year for physical plant and equipment necessary for the prosecution of research. This provision requires administrative responsibility to ascertain that expenditures for physical plant and equipment advanced for offset credit are for research purposes.

(d) Under the terms of the Bankhead-Jones Act the funds authorized by the Act may be used for physical plant, including the purchase and rental of land and construction of buildings and for the equipment and maintenance of such buildings without limitation as to the portion of the funds which may be used for these purposes. The expenditures, however, must be limited to those necessary for the research under this Act. It is an administrative responsibility, therefore, to approve such expenditures only in relation to the specific needs of the work conducted under the Bankhead-Jones grant funds.

The Office of Experiment Stations is charged with the administration of the payments to States authorized by Title I of the Bankhead-Jones Act of June 29, 1935.

Authorization: The Bankhead-Jones Act of June 29, 1935, was enacted with the understanding on the part of the Department, land-grant institutions, and the committees of Congress that 2 per centum of the annual appropriation under Title I of the Act would be needed to provide the administrative services necessary to make the legislation most effective. By ruling

of the Comptroller General after the passage of the Act, the amount available for administration of the payments to States was limited to 2 per centum of the Special Research Fund; thus as a matter of fact, only 0.8 per centum of the total provided by Title I of the Bankhead-Jones Act is actually available for administrative expenses under this ruling.

A further complication in this situation is that the funds for administration are placed in an appropriation item which is entirely separate from that covering the funds to be administered. Although the authorization for both the payments to States and the Special Research Fund is contained in the same Act, the appropriations, being separate items, have not been made in the same ratio. For example, in the fiscal years 1940 and 1941 the appropriation for payments to States under Title I of the Bankhead-Jones Act was \$300,000 more than in the fiscal year 1939. There was no increase, however, in the Special Research Fund for either 1940 or 1941 and, therefore, no increase in the appropriation to cover administration of the increased payments to States.

Project 2. Special Research Projects, Department of Agriculture:

Objective: The purpose of this project is to make provision for special agricultural research -- primarily "into laws and principles underlying basic problems of agriculture in its broadest aspects."

The Problem and Its Significance: Part of the Special Research Fund (48 percent according to section 4 of the Bankhead-Jones Act, approximately 40 percent on the basis of the 1942 estimates) is available to the Secretary of Agriculture for special research projects. This part of the fund was intended primarily to enable the Secretary to undertake studies which are basic to agriculture in its broadest aspects and which may be conducted by such agencies of the Department as he may designate or establish. The Act requires that the research under this fund "shall be in addition to research provided for under existing law (but both activities shall be coordinated as far as possible)." There are many problems which arise, the solution of which requires research of fundamental character in order that further progress may be made. The fund enables the Secretary to undertake such work as the need arises, within the limitation of funds available.

Plan of Work: In administering this fund the aim has been to have a certain flexible character to it to provide opportunity for undertaking timely, meritorious projects as the need arises and to permit the adjusting of allotments on the basis of the changes in relative needs of the projects which are under way. To accomplish this objective the following administrative procedures are followed:

(1) In administering, budgeting, and using the Special Research Fund no money is allotted to operating units until carefully written project plans and cooperation are outlined in detail and approved by the Secretary.

(2) A small part of the fund is held uncommitted, at least during the first half of the fiscal year, so that the Secretary may undertake research on emergency problems that may arise during the year and qualify under the provisions of the Act authorizing the Special Research Fund.

(3) The allotment of funds to all projects under way at the beginning of each fiscal year is made only with the approval of the Secretary on the basis of written reports of progress and detailed plans for the expenditure of funds.

Progress of Work: During the five years that the Special Research Fund has been available 86 separate research projects have been undertaken and 58 have been terminated. Many of the latter were relatively short-time studies designed to provide information for immediate needs. Thus, 11 were completed within one year and 19 within two years. Of the other 8 projects, 4 were completed in three years, 3 in four years, and 1 in five years. A total of 48 projects, involving 9 bureaus, are now under way.

The following are presented as illustrations of the type of work undertaken under allotments from the Special Research Fund:

Plant Growth Substances (Plant Hormones) In Relationship To Plant Production: Since 1928 there has been an increasing appreciation of the existence in plants of certain hormones which have a regulatory function in the growth and development of plants. The isolation and purification of hormones from plants led to their use with some success in various processes of plant propagation. The use of some of these growth-promoting substances appreciably hastened the development of flowers. Numerous claims were made as to the unusual effects of the plant hormones, but the data were conflicting. Research work on this special problem was initiated to establish facts as to the actual effects of plant hormones and to augment the knowledge of the practical advantages to be gained from their use.

In certain kinds of fruits, notably the apple, the dropping just prior to picking maturity causes severe loss to growers. Although cultural treatments and fertilization have some effect upon the dropping of fruit, such management practices have not been sufficient to solve the problem. Spraying experiments conducted in this project, where some of the plant hormones have been used, have produced striking effects in preventing fruit dropping. Under this treatment fruits remain on the tree until they reach good size and high color. Although only one year's investigations have been conducted, the present indications are that the use of these synthetic growth materials as sprays for reducing orchard losses from the dropping of fruit is a highly significant discovery.

Spraying the foliage of certain fiber crops, such as flax, with one of the growth substances (naphthalene acetamide) has resulted in increasing the growth, thickness, and weight of the fibers and the stiffness of the stems.

It has been found that the application of other growth substances, such as naphthalene acetic acid, indole acetic acid, and closely related compounds, results in keeping many of the cells or tissues of the plant in a young, highly active, and youthful state, tending to prevent early maturity or at least to greatly retard the rate of maturation. This is

a matter of potential importance to the study of the problem of aging or old age in animals as well as plants.

Applications of relatively strong concentrations of the growth substances often result in the production of roots in less time and in much greater numbers than on plants to which none of the substance has been applied. These results have proved of commercial value in problems of plant propagation, such as the rooting of cuttings and the grafting of trees.

Higher concentrations of similar or related growth substances have resulted in the production of galls or tumor-like growths resembling in many respects the characteristic behavior of cancer in animals. Thus, the study of the development and control of cancer is aided by studies of the effects of growth-promoting substances on plants.

There have been many and sundry claims that several of these substances now known, particularly vitamin B₁, greatly increase the rate of growth, amount, number, and quality of flowers and fruits produced in the case of many plants. The experiments, however, do not substantiate such recommendations covering the wholesale use of vitamin B₁ on plants.

Economic Relationship of Feed Consumed to Milk Produced by Dairy Cattle: Based on earlier experimental work with dairy cows yielding various amounts of milk, it has been determined what quantities of feed would keep them at uniform body weight. Good approximations have been arrived at and feeding standards have been worked out on the basis of these figures. Hardly any information at all, however, has been available to show to what extent increasing feeding above a certain standard ration would result in increases in milk production and how far increased feeding would be profitable under varying price conditions. Neither was it known to what extent decreasing rations below the standard level could be effected without undue loss in milk production and in receipts and profits when conditions demanded a curtailment in the use of concentrated feeds. Because of the economic importance of this problem, two bureaus and ten State agricultural experiment stations are cooperating on a study of this subject.

Responses in increased milk production to increased feeding above the standard rations appear to be only half as great as previously assumed. More specifically, each pound of increase in the grain ration (assuming that the concentrates contain 75 percent digestible nutrients) produces only about 1.25 pounds of milk, instead of about 2.5 pounds of milk as previously believed. Conversely, if the concentrates are reduced below the standard ration, the loss in milk production is about 1.25 pounds, instead of 2.5 pounds, for each pound of grain withheld. Furthermore, the additional return for an extra unit of feed falls off very slowly even when feeding is increased to quite high levels. This means that there is a much wider degree of elasticity in dairy feeding with profitable returns than was heretofore supposed. It may be possible to use very large quantities of additional feed without any appreciable loss in

efficiency of converting this feed into milk. On the other hand, if sub-normal grain crops or increased grain demand for other uses make it necessary to reduce grain feeding, the effects of such reduction or milk output will be less severe than has been so far assumed.

It was found in this study that, while the cows of modern dairy breeds gained a little in weight when they were heavily fed, the principal response to increased levels of feeding was in the form of higher milk production rather than in gains of body weight. The research on this subject has demonstrated that the commonly used feeding standards for dairy cattle are approximately 25 percent too low for the most economical milk production.

This study was undertaken to obtain information needed in the formation of National agricultural programs. The results obtained are of use for this purpose. They can also be applied directly by dairy farmers who are endeavoring to adjust their acreage of various feed crops and the feeding of their dairy herds to changing market demands for dairy products.

Improvement of the Wool and Other Qualities of Navajo Sheep: Navajo sheep are distinctly superior to improved breeds of sheep in their ability to exist and thrive under extremes of climate and sparseness of vegetation such as are found on southwestern ranges. Generations of natural selection in this region, beginning with their early importation by the Spaniards, have developed the characteristics of hardiness to a marked degree. On the other hand, the Navajo is inferior in carcass quality and yield and quality of wool. By combining the good qualities of the Navajo with those of improved breeds, it is hoped to produce a type of sheep adapted to many regions of the western United States and better suited to the economic requirements of the Navajo Indians.

The Navajo Agency estimates that for the past several years 25 percent of the wool and mohair produced by Navajo Indians is used for handweaving. In 1939 the amount converted into rugs was in excess of 600,000 pounds. These rugs sold for about \$350,000, which was approximately equal to the amount received for the remaining 75 percent of the wool marketed commercially. The rug income can be greatly increased as the quality of the rugs is improved. Improved rug quality depends upon making better wool available to the weavers.

A cooperative study to attain these objectives was planned and initiated. The Bureau of Animal Industry provides technical leadership and guidance. The Soil Conservation Service advised concerning the sheep-carrying capacity of the ranges used and assisted in providing additional range lands. The Office of Indian Affairs of the Department of the Interior provides sheep and facilities and the major part of the general operating expenses of the investigations.

During the period of study (3 years) there has been a definite increase in production of the ewes in the original flock of Navajo ewes. For example, there has been an increase in the fleece weight of mature

ewes of 21 percent, in the body weight of 8.7 percent, and in the pounds of lamb per ewe bred of 8 percent. These increases are due in large part to the systems of selection and management practiced. This information helps determine the production potentialities of the native Navajo ewe under range conditions prevailing in parts of the Southwest.

Preliminary results in cross-breeding the Navajo with improved breeds of sheep, carrying $3/8$ to $1/4$ blood wool, indicated that the offspring have a more desirable conformation, together with improved and increased fleece production and uniformity of fiber diameter. Further study is necessary to ascertain the effects of cross-breeding on hardiness of the sheep and the desirability of the wool for handweaving.

The research has conclusively defined the fundamental characters essential to a wool produced in the region to meet the combined handicraft and commercial needs of the Navajo people. These characters are: $3/8$ to $1/4$ blood in fineness, high luster, low shrinkage, minimum staple length of 4 inches, uniformity in fiber diameter within the staple, a low percentage of kemp and coarse medullated fibers, and a relatively uniform fleece from neck to britch. The sale of 2,400 pounds of laboratory wool in 1939 to Indian traders for resale to weavers and of 700 pounds in small lots direct to Indian weavers was particularly gratifying, since it indicated that the rugs woven from such wool were superior to those woven from wool locally available.

Six small rugs, each made from different wool and with some difference in the methods on carding and spinning, were subjected to wear tests on the floor of the cafeteria in the Department of the Interior building in Washington, D. C. In 210 days approximately 110,000 people passed over these rugs, a wear estimated to be equivalent to 20 to 25 years service by an ordinary family. At the end of the experiment the rugs were in excellent condition, and, although showing some signs of wear, could probably have undergone a second similar test satisfactorily.

Development of Additional Industrial Uses for Surplus Milk: Scientists have long felt there were promising possibilities within the dairy industry for new developments based on the fermentation of milk sugar or lactose contained in whey. It is already commercially feasible to produce lactic acid from whey by fermenting the lactose.

The skim milk available in the United States, as a result of separating whole milk to obtain cream, contains 2.3 billion pounds of lactose. In addition, the quantity of lactose in buttermilk from the manufacture of butter and in whey from the manufacture of cheese amounts to 0.4 billion pounds. Thus, 2.7 billion pounds of lactose is potentially available for fermentation to lactic acid. The use of this lactic acid and its derivatives commercially would be of considerable economical importance to the dairy industry.

Encouraging indications that the commercial uses of lactic acid might be extended were given by the fact that in certain chemical forms it already has commercial uses. Calcium lactate, which is prepared by

neutralizing lactic acid with alkali salts in the fermenting tubs, is used in medicine, in baking powders, and in bread. Sodium lactate, similarly prepared, has been used in the place of glycerine for the absorption or retention of moisture as, for example, in controlling the moisture content of tobacco. It may be used also as an anti-static material in electrical equipment. Copper lactate, formed by a similar process, can be used as an aid in the electrolytic deposition of metals.

The research demonstrated that the ethers and the higher esters of lactic acid have utility as solvents, plasticizers, and modifiers in lacquers, plastics, varnishes, cements, and inks. Certain of the lactic acid esters were converted into acrylic acid derivatives through chemical decomposition brought about by heat. By a chemical condensation of these compounds, several injection molding materials were made, which have improved molding properties and physical characteristics that make them suitable for casting in the form of rods, tubes, and sheets. These materials are particularly valuable because of their transparency, elasticity, toughness, insolubility, and stability to light and other destructive influences. They promise to have wide utility in the preparation of lacquers, varnishes, impregnating compounds, and as supporting materials. Without curing or use of special equipment, all types of textile fabrics and paper may be coated or impregnated with these compounds and thus be made moisture-resistant and impermeable to gases. One compound prepared during this research has remarkable flexibility.

During this research, a method was demonstrated for producing inexpensively the especially pure grade of lactic acid required in casting phenolic resins -- a grade of acid hitherto largely imported.

The research has furnished basic information that gives every indication of playing an important part, in the near future, in the adaptation of lactic acid and its many derivatives to a wide field of industrial uses.

Grain Storage on the Farm: The Ever-Normal Granary, crop loan, and crop insurance programs have emphasized the need for complete and accurate information regarding the deterioration of grain under various storage conditions, both on the farm and in commercial-type elevators. Better storage facilities on the farm would aid growers in marketing their grain crops to advantage, in reducing losses from deterioration, and in securing credit on stored grain. There is need for information as to the types of storage structures that will best preserve quality, the maximum moisture content for safe storage for various periods, the development of effective methods for reducing moisture content, and the part played by micro-organisms in the deterioration of stored grains.

In order to collect information which might have practical value over a wide area, a study was organized in which three bureaus of the Department and seven State agricultural experiment stations cooperated to investigate the problems of the storage of wheat. The studies emphasize that, under typical storage temperatures, low moisture content is

the most essential requirement for safe storage of wheat. Due to differences in prevailing temperatures, size of typical storage structures, and classes of wheat stored, the maximum moisture content for safe storage for one year of sound wheat in unventilated bins varies with the geographical location, being 13 to 13.5 percent in western Kansas, 13.5 to 14 percent in Illinois and Maryland, and 14 to 14.5 percent in North Dakota. It has been definitely determined that ventilation of bins will increase the safe allowable moisture content at time of storage for most kinds of wheat, and a type of ventilation has been developed that is more efficient than any previously used. Two types of portable drying machines have been developed which will satisfactorily reduce, at a nominal fuel cost, the moisture in wheat by from 2 to 4 percent to provide safer storage.

One of the most frequent storage hazards was found to be insect infestation, which increased in proportion to the temperature of the area and the moisture content of the wheat at the time of storage. Through experimentation it was discovered that, contrary to common belief, the protein content of wheat did not decrease during storage.

As a result of these studies, information has been developed as to the quality and allowable moisture content and the type of bins and granaries satisfactory for safe storage of wheat. The investigations have made it possible to more closely define the areas in which storage troubles may be expected. The Commodity Credit Corporation has used the information developed from this research in setting up regulations for loans secured by 23,800,000 bushels of wheat stored on farms in 1938 and 35,000,000 bushels of wheat stored on farms in 1939. The facts furnished this Corporation undoubtedly resulted in better storage and reduced losses to the Government from deterioration in quality or quantity of the stored collateral wheat.

Similar studies are being conducted on the storage of corn. During the period when work has been going on, the condition of the corn crop has been much better than average because of the especially favorable seasons. Preliminary research on the problem, however, has shown that the moisture content and the drying rate of corn are closely related to the average relative vapor pressure of atmospheric moisture. Damage to stored ear corn from rats was found to be particularly heavy, and in some areas corn was infested by insects while in the crib. The investigations conducted so far and the experience gained in regard to the storage requirements of wheat have indicated the value of certain types of bins for storing corn satisfactorily. This information has been furnished the Commodity Credit Corporation as a basis for preparing specifications for the purchase of approximately 41,000 commercial bins for the storage of shell corn under Government loans last year.

Combating Root Diseases Through the Control of the Micropopulation of Soils: Root rots destructive to crop plants are numerous and difficult to prevent. Earlier investigations and observations indicated that perhaps severity of such root diseases might be due to alteration or suppression in part of the normal micropopulation of the soil associated with

crop root systems. This possibility constituted a new approach in the control of troubles of vast economic importance -- an approach basic to agriculture through agronomic practices.

Two root-rot problems of considerable major economic importance in 1937 were cotton root rot and "take-all" disease of wheat. A special research project was undertaken to investigate this idea of change in the micropopulation of the soil as a cause of root rots. The research thus far has been limited to the cotton root rot (*Flymatotrichum*) in the black lands of Texas and "take-all" wheat disease (*Ophiobolus*) in Kansas.

By the planting season of 1940 the laboratory investigations and field observations had determined (1) that the presence of organic fertilizers in the soil increased the population of beneficial micro-organisms so that they could dominate the population of injurious micro-organisms, such as those causing root rot; (2) that root rot is particularly persistent because roots, dead stalks, and leaves of infected plants and often weeds left in the field carry over the disease from year to year; and (3) that root rots produce resting bodies well distributed through the soil which are capable of carrying disease for several years.

On the basis of these findings, a field experiment was started last fall in an area which had been heavily infected with cotton rot in previous years. Immediately after harvest cotton stalks and leaves and weeds were plowed under with the two-fold idea that these sources of infection would be removed from above the soil and by being incorporated with the soil would provide organic matter to increase the population of desirable micro-organisms. Cotton was planted in the usual way in this area in March 1940. A survey of the plots made in August showed so little damage from disease that it is believed that the method of attack on this troublesome problem is sound and practical.

The work on wheat parallels that on cotton and it is hoped that the successful results indicated for cotton are capable of wider application in the control of other root rots.

Uniform Packing of Cotton at Gins: Customary methods of packing American cotton leaves much to be desired. The cotton is packed at the gin in bales of low density, about three-fourths of the surface area of which is covered with materials chosen primarily on the basis of cheapness and weight rather than for the protection afforded the bale contents. These bale coverings are mutilated by the cutting of samples with each change or prospective change of ownership as the bales pass through marketing channels. In order to permit the economical use of transportation and storage facilities, about 80 percent of the bales are recompressed to higher density once and sometimes twice while en route from the gins to the cotton mills. This process involves extra costs and extra handling of the bales. The recompression process, furthermore, frequently causes damage to the fiber. A survey made in 1939, covering the recompression of approximately 25,000 bales in various parts

of the Cotton Belt, showed about 30 percent of the bales were cut and the fiber injured during compression, and reports from cotton spinners everywhere indicate that this figure is not above the average for a term of years. The poor condition of the bales when delivered to spinners and the damage to the cotton in handling and shipment is an item of considerable economic importance.

A number of types of packaging equipment and experimental gins to provide variations in conditioning and cleaning of the cotton are being used in this research. Shipping tests of numerous types of bales with various available types of bale coverings, involving customary procedures and various methods of transportation, indicated that the round bales with cotton bagging withstood handling and shipping better than bales covered with jute bagging. Preliminary analysis of costs of gin packaging and cost of transportation, storage, and handling of bales and consideration of the mechanical problems involved indicate that a 500-pound rectangular bale, with a density of approximately 25 pounds per cubic foot, would have advantages over various types of bale packages now in use. Cutting and other fiber injuries during compression seems to be due primarily to lack of uniform pressure during recompression, so that studies to correct this mechanical difficulty are being intensified. These preliminary results are of such promise that a high-density gin has been designed and has been installed in time for experimental tests of high density packaging on a practical scale during 1940. It is believed the practices being tested will be adaptable to standard gin equipment without material alterations of the equipment.

Meat as Affected by Enzymes: All agricultural products are either living tissues or derived from what were living tissues. The chemical changes in tissues, whether alive or dead, are largely caused by the presence in the material of a number of substances called enzymes. These substances hasten the growth, ripening, and decay of tissue. In many cases enzymes are substances constructed by the cells while alive out of certain vitamins -- a fact that indicates why these vitamins are important. Micro-organisms contain enzymes. The effects of bacteria on food, etc., are due to the bacterial enzymes.

When isolated from the tissues that produced them, many enzymes continue to perform the same kind of chemical change as before. They thus become powerful chemical agents. For example, pepsin is a digestive agent in the stomach; it also digests meat in a factory for the making of peptone. Similarly, diastase is an enzyme that changes starch to sugar in sprouting barley. Made from malt, diastase does the same thing in the brewery and in the calico printery. Lipase is an enzyme that digests the fats eaten by animals. It is also able to digest the fat from hides in the tannery.

Enzyme studies have two kinds of applications: First, because enzymes are responsible for both growth and decay, there are applications of enzymology to problems of growth and the preservation of agricultural products; second, because enzymes are chemical agents, there are applications to industry. The use of an enzyme has often improved a technical

process. Before either kind of application can be made it often happens that new knowledge of the action and nature of certain enzymes must be obtained. This knowledge is sought through fundamental research which, when successful, is characterized by usually having more than one practical application.

Research was undertaken to determine the effects of enzyme action in meat, particularly while in cold storage. In general, enzyme action is slowed down by low temperatures. For this reason agricultural commodities decay more slowly in cold storage.

There is evidence that the digestion of fat can proceed with comparative rapidity at low temperatures, whereas the digestion of protein is relatively more retarded. For this reason, the staling of fat is more of a problem than the breakdown of the protein portion of meat in cold storage. Very low temperatures for storage were found to have an advantage over moderately low temperatures because they retarded the breakdown of fat as well as that of protein.

In this research a new enzyme has been discovered in muscle that apparently contributes to the spoilage of fat and is being studied further.

Another new enzyme in muscle that causes the self-digestion of the protein part has been discovered and isolated. The existence of this enzyme in meat is responsible for the increased tenderness that occurs during aging. The description of the existence and properties of enzymes has been used by industry in working out new methods of processing tough meat.

Various meat tenderizers are known that can be applied artificially. They contain the digestive enzyme from the papaya (papain). This process involves an actual pre-digestion of the meat. In this research a method has been developed of making crude preparations of papain for commercial use which keep indefinitely and are at least twice as active as any commercial preparations now on the market. All our papain is at present imported from Africa or the East Indies because domestic production has been too expensive. It is possible that this new method of preparation may permit economic production on American soil. The pure papain enzyme has been isolated from the crude material in crystalline form. This crystalline enzyme is expensive to make, but because of its purity appears to be of special interest to medicine.

Nutrition of Animals and the Nutritive Value of Feeds: Although nutrition studies have been carried on for many years and at many research institutions, there are still problems of major importance to the livestock industry that remain unsolved. This situation is partly due to the many conditions under which livestock are raised and to the great number of kinds and types of livestock. However, the expense of conducting nutrition studies with large animals has probably been the greatest handicap to additional knowledge. Investigations with laboratory animals -- the usual type of study -- produce results that cannot always

be transposed to large animals per se, because of essential differences in the 2 types of organisms. The California Agricultural Experiment Station, in cooperation with the Department, provided livestock and technical personnel to study certain specific problems of basic value to the livestock industry.

Investigations to determine the vitamin A requirements were initiated with horses varying in age from 4 to 14 months that had previously had normal rations, including abundant alfalfa hay and pasture. On the experimental diets deficient in vitamin A it required from 265 to 627 days to deplete the vitamin A stores of the individual animal and to develop the symptoms of night blindness -- the first detectable symptom of vitamin A deficiency. The length of the depletion period varied with the age of the animal and previous feeding history. Further symptoms of vitamin A deficiency following the onset of night blindness were rough hair coat, nervousness, loss of appetite, clouding of the corneas of the eye, and impaired daylight vision. It was determined that horses required 20 International Units of vitamin A or 40 International Units of carotene for each 2.2 pounds of body weight for minimum normal growth, freedom from clinical symptoms, and little or no storage of the vitamin in the body. The minimum requirements for significant storage, for optimal dark adaptation, etc., were 60 and 200 International Units of vitamin A and carotene, respectively, per 2.2 pounds of body weight.

In an attempt to determine the effect of pregnancy as compared with spaying on heifers intended for slaughter, a study was undertaken to ascertain the rate of gain, feed utilization, feed consumption, time of finish, dressing percentage, and quality of carcass of animals maintained in the open condition, spayed, and pregnant. The pregnant heifers gained faster and required less feed per unit of gain than either the open or spayed heifers. Even though there was a greater loss of offal in pregnant uteri in the bred group, differences in dressing percentages were hardly significant. This was evidence of differences in the carcasses which prevented the total offal loss being reflected in the carcass weight. The results proved definitely that spaying was not justified and that breeding had little, if any, advantage for heifers being fattened for market.

Experimental results show that the following vitamins are necessary in the diet of the pig: A, D, thiamin, riboflavin, nicotinic acid, and probably either or both the filtrate factor (pantothenic acid) and vitamin B6. Investigations with swine fed purified diets showed that the minimum riboflavin requirement of the pig lies between 1 and 3 milligrams per 100 pounds of pig daily. Further results indicated that the pig cannot synthesize thiamin and that the minimum requirement for this factor was about 1 milligram per 100 pounds of pig daily.

Research to Improve Methods of Collecting Basic Agricultural Statistical Facts: From its beginning the Department of Agriculture has had the responsibility of providing statistics relating to the many phases of agriculture. The Federal Census of Agriculture, taken every

five years, cannot be broadened because the schedules used are already too long and complicated. In most cases the persons interviewed by the census taker cannot remember with any degree of accuracy events that happened six or more months before the interview. Frequent complete censuses of agriculture are impossible because of the prohibitive cost involved. Research work on this problem was initiated to discover more effective and reliable methods for obtaining, on a sampling or true cross-section basis, current basic statistical facts concerning agriculture, such as acreages, yield, and production of various crops, livestock numbers and production, total supply, prices, farm income, farm expenditures, employment on farms, and wage rates.

It has been clearly demonstrated that by selecting, on a random basis, a sample or cross-section, within townships, it is possible to expand the samples to reliable estimates for the subjects included in the region to be covered. The results of the study suggest the possibility of using this sampling method to greatly reduce the number of economic and special questions that are carried on the decennial and quinquennial censuses. These questions have presented serious difficulties to untrained census enumerators, have materially reduced the reliability of the census returns, and have greatly increased the cost of the Federal censuses. The use of the cross-section or sampling method has the advantage that estimates can be made in a few days or weeks as compared with months or longer required for a complete census enumeration.

From results to date it is believed that this new sampling technic can be developed for use by the Department on a nation-wide basis. If so, it will result in more up-to-date information concerning changes which affect our national economy and at less cost than securing similar less timely data by complete enumeration.

A related phase of this research was designed to meet the many new and exacting demands that have developed as a result of the agricultural programs of the Department and which have intensified the need for more accurate methods of forecasting and estimating crop production as early as possible in advance of harvest. Experimental forecasts of wheat production in Kansas during the past two years, made as of July 1, based on crop-meter measurements of acreage and analyses of samples of wheat taken at random a few days prior to harvest, were much closer to the final production figures than were the forecasts made by the usual methods of interpreting reports secured by mail. It also was possible to locate from the samples areas of high protein wheat and to estimate the proportion of different varieties grown.

Preliminary analyses of the effect of weather and soil moisture on yield per acre and of the use of objective observations of fields of growing crops give promise that the forecasts of crop production can be made with greater accuracy and probably earlier in the season than is now possible. As rapidly as the results of this research are obtained they are being used in a practical way by the Department in the improvement of its crop-reporting services.

The Effect of Certain Plant Substances on Physiological Processes in Dairy Cattle: Sterility, complete or partial, leading to curtailed productiveness, is a source of economic loss with domestic animals. This loss is due to a reduction in milk yield and to the fact that cows with a history of irregular calving but otherwise valuable cannot be profitably retained in a herd. Research has shown that the processes of growth, reproduction, and lactation, are dependent upon the normal function of the pituitary gland which is located at the base of the brain. In the absence of this gland, none of these processes can be maintained regardless of environmental conditions or dietary regime. Suitable extracts of the pituitary are capable of initiating and maintaining these functions above the usual normal levels. This investigation was designed to identify as closely as possible the dietary precursors of the pituitary hormones with the hope of finding rations which will produce a maximum functioning of the pituitary gland.

Normally the activities of the ovaries are controlled by a hormone secreted by the pituitary gland. Frequently, with cows that come in heat regularly but fail to conceive or with cows that do not even come in heat, the trouble is due to failure of the ovaries to function normally. Research has shown that injections of this pituitary hormone will increase ovarian activity. Prevention of these cases of sterility would be more economical than curing them.

During the course of this investigation two substances that stimulated ovarian activity were shown to be present in certain plants. One of these substances is found under certain conditions in plants of Sudan grass, corn, oat, alfalfa, and feterita. This particular material was found in high concentrations in one sample of corn plants, which indicates that the corn plant will be a good source of the material if the conditions necessary for producing such high concentrations regularly can be determined. However, the material, like the hormone from the pituitary gland, is destroyed in digestion and must be administered to animals by intravenous injection.

The second substance in plants that affects the reproductive function is active when ingested orally. It has been prepared from the young oat plant. When fed to young rats at weaning in a ration that would otherwise be considered complete, this material has brought about sexual maturity at 31 days of age, whereas rats without this material did not reach a comparable stage of development until they were 51 days old. Nothing is known of the chemical nature of the material or the conditions under which it occurs in plants, but it is thought that it may help explain the part that pasture plays in the reproductive functions of dairy cattle.

This investigation promises to furnish important information on the following points: (1) The relationship of the components of usual barn rations to poor breeding history in cattle; (2) the effect of pasture on physiological activity and on fertility in cattle; and (3) the development of possible supplemental economical treatments, through feeding, to correct breeding difficulties with domestic animals.

Weather Forecasting in Relationship to Agriculture: Among the problems basic to agriculture in its broadest aspects for study under the Special Research Fund made available for such investigations, the Secretary of Agriculture had considered the possibility of improving weather forecasts as they relate to agriculture. The Secretary had in mind not merely the accuracy of the day-to-day weather forecasts but such problems as weather forecasts for longer periods in advance, the relationship between weather forecasts and crop forecasts, more definite information as to weather, along with other factors, such as soils, varieties, cultural practices, and others, in connection with the adjustment of crop production, quality of products, processing, storage, and distribution.

The importance to agriculture of advance information, even of a few days (for example, as to winter storms of intensity in the Great Plains area), would be of real value. In a similar way, even a few days advance information on weather would be of great value in connection with other problems of agriculture, including production, harvesting, processing, transportation, and distribution.

The forecasting of crop production in advance throughout the crop season is one of the big responsibilities of the Department. Timeliness and accuracy in these forecasts have become increasingly important during the past two years because of the needs of the national agricultural programs, especially the wheat, corn, and cotton acreage adjustment and loan programs, surplus removal, and diversion programs for other crops, as well as the crop-insurance program. Increased accuracy and timeliness can be attained, first by determining the relationship of weather to the yield per acre of specific crops and, second, by developing sound methods of forecasting critical weather over longer periods than is possible with present knowledge.

When the Special Research Fund was made available, basic research on the relationship of weather to agriculture was undertaken with the above objectives in mind. The studies were organized on a departmental level rather than as projects of the Weather Bureau, which was an agency in the Department of Agriculture at the time these studies were instituted. The Office of the Secretary was active in their planning and supervision.

The following results have been obtained from this research:

(1) As a direct result of these investigations through a 5-year period, 5-day weather forecasts are now regularly undertaken by the Weather Bureau. Specialists of the Weather Bureau state that "these 5-day forecasts would not have been possible if we had not at first conducted the research under the Bankhead-Jones special research projects."

(2) Investigations as to the structure of polar continental air and the development of cold waves in North America, through observations at Fairbanks, Alaska, Fargo, North Dakota, and at Ft. Smith, Canada, in cooperation with the Canadian Government, have furnished an explanation

of how cold air masses build up in the far North during winter by radiational cooling at snow surfaces and the general upward spread of cooling effect during the Arctic night. Progress has also been made toward a clear understanding of how the cold air "front" is released and propagated in the form of a cold wave that will bring sharply lower temperatures in its path as it moves across the United States. These facts are of great value for ultimate application in improving the accuracy and extending the forecasts of cold waves in the United States. In connection with the observations at Fairbanks, the practicability of radiometeorograph "radiosonde" soundings in place of airplane soundings was demonstrated under extreme conditions.

(3) The leading scientific meteorologists of this country state emphatically that the research carried on under this project has more than doubled their previous knowledge in this field. This research has made use of the upper-air soundings that have become available since about 1934. As a result, great progress has been made in gaining an understanding of the behavior of the atmosphere in its third or vertical dimension, and methods for quickly analyzing these upper air data on charts have been developed that make it possible for the weather forecaster to use these upper air soundings along with the regular maps in making forecasts.

Project 3. Special Research Laboratories in Major Agricultural Regions:

Objective: The establishment, maintenance, and development of research laboratories and facilities, and the prosecution of research on problems of regional importance at these laboratories located in major agricultural regions, as authorized by sections 1 and 4 of the Bankhead-Jones Act of June 29, 1935.

The Problem and Its Significance: The Bankhead-Jones Act provides that the Secretary of Agriculture shall use one-half of the Special Research Fund for the establishment and maintenance of research laboratories and facilities and for research as described by the Act at such laboratories at places selected by the Secretary in major agricultural regions. The estimates for 1942 provide that the amount for this purpose shall be the same as the appropriations for the fiscal years 1939, 1940, and 1941, although there is a reduction in the total estimate for the Special Research Fund.

The laboratory provision in section 4 of the Bankhead-Jones Act was originally initiated by the States through the Land-Grant College Association. The objective was to provide for a cooperative Department and State experiment station attack, regional or national in scope, and beyond that which might reasonably be expected as an undertaking for any individual State without endangering the ability of the State experiment station to meet the problems primarily of State and local concern. Each of these regional laboratories serves as a focal center for the coordination of the research in the region on the subject studied by the laboratory.

Plan of Work: The procedures adopted by the Secretary in the establishment of regional laboratories under the Bankhead-Jones Act are as follows:

(a) The laboratory projects were selected by the Secretary on the basis of joint recommendations, submitted by the directors of the State agricultural experiment stations of the respective regions, as to problems which are agreed upon as of first importance to each of the regions, along with similar suggestions from subject-matter bureaus of the Department, viewing the needs of agriculture from the national and interregional point of view.

(b) Final approval by the Secretary of a laboratory project is not given until the research program, cooperative relationships, and the physical plant and budgetary requirements are jointly and carefully planned by specialists of the Department and of the State experiment stations. The Secretary's approval is given only to a definite written project outline explaining the problem to be studied and the plan of attack. This outline, when approved by the Secretary, provides for the allotment of funds for the project to the appropriate subject-matter bureau, or bureaus, of the Department.

(c) As far as practicable, the location of the regional laboratories is selected by agreement at existing State or Department experiment stations, so as to avoid duplication of equipment and personnel, and to promote in every way coordinated, cooperative action.

(d) A written memorandum of understanding covering the cooperative relationships of all agencies which will participate in the project is formulated and agreed to in writing by all the participating agencies.

(e) A designated representative of each State agricultural experiment station in the region and representatives of the Department meet at least once annually at each regional laboratory to carefully review the progress of the past year and to formulate the research program for the succeeding year in order to provide for continuous and effective joint action in planning and carrying forward the cooperative regional laboratory program.

The Office of Experiment Stations is responsible for the development of the laboratory programs, in cooperation with the bureaus and State stations, to be presented for the consideration of the Secretary, for assistance in the general planning of the work and the development of effective relationships at each laboratory and for the administration of the laboratory fund in accordance with the terms of the Act.

Progress of Work: In accordance with the policy outlined above, nine laboratories have now been established, with the cooperation and participation of all the State agricultural experiment stations in each of the regions in which the respective laboratories are located. A description of each of these laboratories follows:

Regional Laboratory for Research into the Heredity and Behavior of Vegetable Crop Plants for the Development of Improved Varieties Having Superior Adaptation to the Southeastern Region of the United States (approved by the Secretary November 30, 1935; located at Charleston, South Carolina).

Objective: To obtain through fundamental research basic information prerequisite to efficient and orderly breeding of improved vegetables for the Southeastern region; to produce, through selection and breeding, new and improved vegetable varieties and breeding stocks; to correlate this research as far as possible with State research; and to aid in insuring that the results may be of the greatest benefit to the agriculture of the region.

Cooperation: The following State agricultural experiment stations in the region jointly agreed with the Department on the importance of establishing a laboratory for research on this problem, participated in the formulation of the program, and are cooperating in carrying out the objective: Virginia, North Carolina, South Carolina, Georgia, Florida, Mississippi, Louisiana, Texas, Arkansas, Alabama, Oklahoma, Tennessee, and Kentucky.

The Problem and Its Significance: The value of the vegetable crops of the Southeastern region, not including white potatoes and sweetpotatoes, is about \$80,000,000 annually. There has been a tendency for the States in this region to lose their relative position in production and the value of certain vegetable crops, this being due in large measure to the increased difficulty of producing products of high quality at reasonable cost. Artificial methods of disease and insect control are becoming less effective or more expensive. Aside from the purely commercial aspects of vegetable growing and shipping, there is need for the development of new varieties of improved adaptability for home garden use to protect the general health and well-being of both the rural and urban populace in the South and Southeast.

Plan and Progress of Work: The breeding program initiated by the laboratory and the cooperating State agricultural experiment stations has resulted in the development of promising strains of peas possessing Fusarium-wilt resistance or cold tolerance, or both. If trials now being conducted at the cooperating stations show that these peas have a real value under a wide range of conditions, it is planned to release the best strains to seedsmen for commercial increase. Several strains of beans having bacterial-blight tolerance, as well as hardiness to adverse weather conditions, also have been released to the stations for further trial. Inbred lines of watermelons have been developed for earliness, for sweetness, and other quality factors and for resistance to Fusarium wilt. There appeared to be no relation between resistance to this disease and fruit weight, fruit shape, or sugar content or with seed color. Inbred and open-pollinated lines of cabbage from survivors of a freeze in 1938 are being used for further selection and breeding to develop a cold-resistant nonbolting, round-headed strain of high quality. Crosses between starchy lines of corn

having resistance to corn ear-worm damage and high-quality sweet lines of fair resistance have produced types which excel anything now available from other sources but which can still be further improved. A total of 55 commercial varieties, 23 hybrid strains, and 308 foreign introductions of strains of tomato and related species have been studied for yield, hardiness, freedom from cracking, and resistance to Fusarium wilt and to midsummer defoliation caused mainly by various fungous diseases. A few lines were found with some degree of resistance to defoliation under the critical, midsummer conditions of coastal South Carolina. Certain of the introduced species of tomato from South America were observed to possess some resistance to a leaf-spot disease organism. One line resulting from a cross of the Marglobe variety with a South American species of the currant type proved to be outstanding because of resistance to the two principal leaf-defoliating organisms. A limited quantity of seed of the fourth and fifth generations from this cross has been sent to collaborating State experiment stations for use as parental stock in breeding programs designed to produce leaf-spot resistant tomatoes for commercial production. Other outstanding hybrid material has been backcrossed to commercial parent stocks and also outcrossed to large tomato varieties, with the objective of combining desirable characteristics.

The release for commercial production of certain plant materials resulting from the breeding program of the laboratory now awaits only the results of trials under a wide range of conditions now in progress at the cooperating stations.

Regional Laboratory for Research into Laws and Principles Underlying Pasture Improvement in the Northeastern Region of the United States (approved by the Secretary February 20, 1936; located at State College, Pennsylvania).

Objective: To obtain through basic research facts and materials applicable in pasture improvement throughout the Northeastern States; to relate this research to and coordinate it with other research in this region conducted by various State agricultural experiment stations which aims at the improvement and better management of pastures; to aid in the development of methods whereby the results and materials of this research may be fully utilized for the benefit of agriculture in the Northeastern States.

Cooperation: The following State agricultural experiment stations in the Northeastern region agreed jointly with the Department on the importance of establishing a laboratory for research on this problem, participated in the formulation of the program, and are cooperating in carrying out the objective: Vermont, New Hampshire, Connecticut, Massachusetts, Maine, Rhode Island, New Jersey, Delaware, New York, Pennsylvania, West Virginia, and Maryland.

The Problem and Its Significance: Pasture improvement is essential to agricultural betterment in the Northeastern region. It has a direct relation to problems involved in the control of erosion and in watershed

protection, and is of primary importance to livestock production, particularly the dairy industry. In this region of the United States a steady increase in urban population has resulted in a corresponding effective demand for market milk and sweet cream. Milk production in the region has been unable to meet market demands, principally because of normally low feed supplies, a generally short pasture season, and a low carrying capacity of pastures, all of which have limited the dairy cattle population, restricted milk flow, and increased the cost of production. Maintenance of a milk supply more in line with market demand calls for a more abundant supply of cheap feed. Pastures in the year-round program of the dairy farm afford the cheapest source of feed and produce the most profitable returns.

Plan and Progress of Work: The yield and quality of cereals have been greatly improved through the use of modern breeding methods; and, since grasses are near relatives of the cereals, the laboratory program was conceived and developed to take advantage of the knowledge and experience gained in the cereal improvement program.

Thousands of pasture plants have been assembled, grown, tested, and hybridized at the laboratory. As promising new plants are developed, stocks of them are sent to the cooperating State stations for trial. The breeding program of the laboratory has advanced to the stage where certain plant materials are being tested under varying soil and climatic conditions at six of the cooperating stations. Individual plants of orchard grass having distinct plant characteristics were collected in Maryland early this summer and are being grown at both the laboratory and the Maryland Experiment Station for future breeding trials to produce strains of orchard grass superior to those now available. Six different strains of Kentucky bluegrass have been supplied to the Pennsylvania Experiment Station. These strains are being grown in plots where relative yields will be determined by clippings. The West Virginia Experiment Station obtained individual plants of Kentucky bluegrass to establish breeding plots. Some 1,500 or 2,000 individual bent-grass plants are being collected in Rhode Island in cooperation with the experiment station as a basis for future breeding. During the winter the laboratory made crosses of several of the more promising white-clover plants selected by the New Jersey Experiment Station. The hybrids are being grown at the New Jersey Station and, in addition, 40 individual plants of white clover developed by the laboratory are being tested by that station. These plants, if of proven superiority for certain characters, will be used for further breeding. The laboratory also has supplied the Delaware Experiment Station with individual plants of white clover.

Orchard-grass plants resistant to leaf spot and stem rust have been discovered by the laboratory. By inbreeding these plants, lines breeding true for resistance will be established and utilized in the production of superior varieties. Rust-resistant plants of timothy and of white clover have been crossed with susceptible, but otherwise desirable, plants to establish resistant lines. Following three years of testing 81 Kentucky bluegrass plants in mixture with white clover to determine their ability to withstand competition, 16 have been selected as outstanding and their seed increased. This seed is to be compared in

intensive tests with commercial seed now available. Similarly, of 64 plants of white clover grown in association with Kentucky bluegrass the more promising plants were crossed in the greenhouse to study their combining ability.

The effect of different frequencies of clipping pasture grasses (simulating different grazing management practices) showed that frequent clipping resulted in reduced forage yield, a diminished root system, and inability of the plant to spread. At the other extreme, infrequent clipping did not allow efficient use of soil moisture. The intermediate clipping allowed the plants to produce adequate yields, provide a good root system, and produce the largest amount of forage on a limited amount of moisture.

Seed treatment methods have been perfected whereby 95 percent or more of viable Kentucky bluegrass seed will germinate immediately after harvest. Similar methods will show the possible germination of freshly harvested seed in other species of grasses. These methods will be of particular interest to the seed trade since it is not at present possible to determine the percent of viable seed until the end of a dormancy period which ranges from six months to a year after harvest.

A technic for crossing white clover in the greenhouse has been developed which gives results similar to those obtained by the present method which is dependent upon bees operating under cages in the field.

Studies of the effect of plant diseases upon the chemical composition and nutritive value of pasture plants have shown that the carotene content of white clover is reduced at least one-third by leaf rust.

Regional Laboratory for Research into the Industrial Utilization of the Soybean and Soybean Products in the North-Central Region of the United States (approved by the Secretary February 20, 1936; located at Urbana, Illinois).

Objective: (1) To develop industrial uses for the soybean and soybean products; (2) to obtain information on the effects of different processing methods on the quantity and quality of products obtained from the soybean; (3) to provide facilities for testing the quality and adaptability of types and varieties of soybeans for industrial uses.

Cooperation: The following State agricultural experiment stations in the North-Central region jointly agreed with the Department on the importance of establishing a laboratory for research on this problem, participated in the formulation of the program, and are cooperating in carrying out the objective: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

The Problem and Its Significance: The increasing importance of the soybean in both agriculture and industry, as indicated by the fact that the acreage now planted to this crop is more than twice that of 10 years ago, has

focused attention on problems related to industrial uses for soybeans and soybean products. Because of its high content of oil and protein, the soybean is adapted to a wide variety of industrial uses. The development of industrial uses for soybeans and the production of varieties particularly suited to the needs of industry is the basis upon which the laboratory program is founded, with the purpose of extending the uses of this major farm crop.

Plan and Progress of Work: As a direct result of the research of the laboratory, numerous paints and varnishes made from soybean oil have been prepared and tested, and cooperative tests have been undertaken with seven other laboratories and paint companies, so that the favorable results found by the laboratory on soybean paints and varnishes could be substantiated by disinterested parties. Information made available by the laboratory has been used by one paint company in making and selling over 1,000,000 gallons of soybean paint. Data on the smoke, flash, and fire points of soybean oil, compared with other drying oils, have been made available as useful and necessary information to varnish manufacturers in the cooking of varnish made with soybean oil. Investigations are under way to develop a suitable refining loss test for solvent-extracted oil, adequate oil color grading methods, and objective means of measuring the flavor of soybean oil. These methods are necessary to manufacturers using soybean oil for varying commercial processes.

An aqueous dispersion of soybean proteins in formaldehyde solution, developed and patented by the laboratory, is being used by commercial concerns as a leather dressing and as a size for glassine paper with encouraging results. A patent has been applied for on a protein laminated plastic with properties comparable to, and which can be produced cheaper than, existing synthetic resin laminated plastics. A mixed plastic of formaldehyde-treated soybean meal and phenolic resin has been developed that should compete favorably in price with the present cheapest colored plastics. Results obtained on the extraction with water of protein from oil-free soybean meal and its precipitation from solution have assisted industrial processors interested in refining soybean protein. One company which used some of these data is now producing 7 tons of protein daily. The laboratory is studying the relationship between the alkali treatment of soybean protein and its adhesive strength and dispersibility, because of the importance of these properties in the utilization of protein for paper sizes and coatings.

The laboratory has developed a method of extracting soybean oil with various solvents to produce two types of oils, one resembling linseed oil and the other resembling cottonseed oil. Preliminary results obtained with small pilot-plant equipment indicate that a relatively large fraction of excellent drying oil can be very cheaply extracted from soybean oil. With modifications of the process, it is believed that appreciable quantities of highly unsaturated oil can be produced from other drying oils, such as linseed oil, this processed oil being particularly suited for blending with ordinary soybean oil for use in protective coatings.

As a result of cooperation between the laboratory and the State agricultural experiment stations two new high-yielding varieties, Mt. Carmel and Patoka, have been released to growers. These varieties, which are particularly adapted to southern corn-belt conditions, have special characteristics for industrial utilization. Climate was found to be an important factor affecting the composition of the soybean seed. However, a variety possessing a desirable characteristic, such as high oil content, maintained its relative position to other varieties in regard to this character within a wide range of climatic conditions. Fertilizer treatments and fertility levels in cultural practices affected the yield but did not markedly alter the chemical composition of soybeans. Along the northern edge of the soybean belt present varieties of soybeans appeared to be adapted only to very local areas.

The soybeans harvested early in the crop year 1939 were to a large extent green in color and gave a distinctly green oil. When these beans first appeared on the market, any bean possessing green color was classed as damaged, and penalties of as high as 30 cents per bushel were assessed against the growers. The laboratory found that the color was caused by chlorophyll and could be removed from the oil by slight changes in the customary commercial refining procedure. These facts were made available to all interested, and as a result of cooperation between producers, processors, and the Agricultural Marketing Service, the penalties on green beans were reduced from 30 to 3 or 4 cents per bushel.

Regional Research Laboratory for the Improvement of Swine Through the Application of Breeding Methods (approved by the Secretary December 22, 1936; located at Ames, Iowa).

Objective: The improvement of swine through the application of breeding methods.

Cooperation: The following State agricultural experiment stations jointly agreed with the Department on the importance of establishing a laboratory for research on this problem in the North-Central region, participated in the formulation of a program, and are cooperating in carrying out the objective: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, and Wisconsin.

The Problem and Its Significance: As the size of families has decreased during the past three decades there has been less demand for large cuts of pork well covered with fat and more demand for small, lean roasts and chops. In the same period there has been a loss of foreign markets for pork and lard and an increase in the development of lard substitutes. These factors have resulted in an uneconomical return from the type of hog now produced because there is a lack of demand for parts of the carcass. The solution of this problem would seem to lie in the development of hogs yielding carcasses that supply the volume of lard and pork which the consumer will use at prices favorable to the producer.

Plan and Progress of Work: The Swine Breeding Laboratory, with the active participation of cooperating State stations, is developing inbred lines of swine with the purpose of increasing the productiveness of sows, growth rate of pigs, economy of gains, increased physical vigor, and desired quality of carcass. The inbred lines are made up of 25 lines of the Poland China breed, 10 lines of Duroc-Jersey, 3 lines of Hampshire, and 1 line of Danish Landrace, and there is one crossline of the Danish Landrace and Tamworth breeds. The breeding herds now total approximately 550 sows and 80 boars. About 460 litters were farrowed this spring and approximately 150 litters will be farrowed this fall.

The inbreeding of swine requires many generations before the desired characteristics are fixed. The generations produced so far are performing favorably in comparison with the non-inbred lines. Crosses which have been made between inbred lines and crosses of inbred boars on non-inbred sows have produced promising results. The results achieved so far in the swine-breeding program compare favorable with the progress made in the early development of hybrid corn, the ultimate success of which has been spectacular.

The inbreeding program of the laboratory has progressed to a point where about 15 inbred lines are ready for testing by outcrossing to unrelated lines. Outcrossing is used to measure the ability of the line to produce offspring having characters of economic importance. When, by this method, two inbred lines have demonstrated their ability to transmit desirable characters, crosses will be made between them to produce offspring combining the superior qualities of each line.

The Indiana, Kansas, Ohio, and South Dakota stations are making available sows for testing inbred Duroc-Jersey and Poland China boars developed in the laboratory program. Some of these matings will be made this fall and others will be made during the spring breeding season. At the Nebraska station gilts bred to inbred boars are being placed in the hands of members of the 4-H Club where definite records can be obtained on the performance of the offspring of the inbred lines. The Minnesota station, in order to observe performance under practical conditions, is making available to several farmers groups of five sows and one boar of a crossbred strain developed by the station. Carcasses of pigs of this crossbred strain have been commended by a packing company for such desirable qualities as shape of ham, length of side, and high yields of the more popular cuts.

In this program means are being developed with success for measuring and evaluating the transmission by heredity of characters of practical significance. The laboratory has demonstrated that inherent differences in sows are responsible for a little more than one-seventh of the variation in the number of pigs farrowed and weaned and for more than one-eighth of the variation in the weaning weight of pigs. A sow's own record was found to be about three times as important as the record of her dam or full sister in selecting for performance on the basis of the number of pigs farrowed and weaned and for weaning weight of pigs. It was shown

that the weight of pigs at 180 days of age is accounted for by hereditary factors to an extent ranging between 20 and 40 percent. These developments have significance because the lack of means of evaluating the influence of hereditary factors has in the past served to retard the breeding improvement of swine.

Regional Research Laboratory for the Improvement of Sheep for Western Ranges Through the Application of Breeding Methods (approved by the Secretary February 24, 1937; located at Dubois, Idaho).

Objective: The development of sheep for western ranges superior in hardiness, yield and quality of wool, and lambs produced.

Cooperation: The following State agricultural experiment stations in the region jointly agreed with the Department on the importance of establishing a laboratory for research on this problem, participated in the formulation of the program, and are cooperating in carrying out the objective: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Utah, Washington, and Wyoming.

The Problem and Its Significance: The profitable use of the grazing lands of the western range regions requires the production of sheep for meat and wool. This range area contains about two-thirds of the breeding sheep of the United States and supports one of the most important of the Nation's agricultural enterprises. In order that this industry may be continued on a profitable basis, there is need for the development of strains of sheep more efficient in wool and lamb production than those now existing.

Plan and Progress of Work: The breeding program of the laboratory is designed to develop an improved mutton type, longer staple wool, and the open-face characteristics so important on the range. The availability of lines developed by the cooperating State agricultural experiment stations will make possible the use in the program of a larger number of sheep upon which to base conclusions and a wider choice of lines for combining to obtain desirable qualities. The utilization of several lines may be necessary to develop distinct types of sheep which would be suited to the varying kinds of ranges encountered in different parts of the region.

In order to concentrate the most desirable characters in the shortest possible time, inbreeding has been generally practiced in the laboratory program. The first-generation progeny of the inbred series went into the breeding flocks in the fall of 1939. The results of the breeding conducted to date indicate that the open-face character is dominant over the covered face and that the long-staple fleece is dominant over the short-staple.

The advisability of doing most of the culling on yearling sheep was demonstrated since yearling records were found to be dependable in estimating lifetime merit. This system will mean that inferior breeding ewes will not have to be kept beyond the yearling stage before they can be discarded. This finding is of significance to the practical sheepman in that he can discard more efficiently.

Interest in the program of the laboratory is evident from the fact that one practical sheep producer offered the use of a large band of ewes for testing rams produced at the laboratory. At the time of the disposal of surplus animals, breeding animals were purchased by buyers from Idaho, Iowa, Montana, Ohio, Utah, and Wyoming. Range rams were loaned by the laboratory to the Arizona station to determine the adaptability of these rams for lamb production and ranch ewe replacement with a commercial band of ewes under range conditions. Stud rams have been loaned for developing inbred lines in the California station flock. The Nevada station plans to make a flock of purebred Rambouillet ewes available for testing inbred rams produced by the laboratory. In an attempt to develop other inbred lines as a supplement to the laboratory program, the Utah station is starting two such lines of its own breeding and will make available ewes for testing rams produced as a result of this inbreeding.

An important need in connection with the improvement of wool has been a practical means of ascertaining uniformity in wool fibers. A series of standards for use in this connection has been developed by the laboratory and reproduced pictorially on film strips. By comparing experimental samples with the standards, research agencies will be able to report results of wool studies on a comparable basis. This development is significant in providing a medium of exchange and comparison of data not now available. Copies of the film strip have been requested by a number of cooperating stations.

Regional Laboratory for Study of the Mechanism of Infection in the Contagious, Infectious, and Parasitic Diseases of Domestic Animals and Poultry, and Methods of Control in the Southeastern Region (approved by the Secretary February 24, 1937; located at Auburn, Alabama).

Objective: To obtain through basic research facts and materials applicable to an understanding of the mechanism of infection, resistance, and immunity in the contagious, infectious, and parasitic diseases of domestic animals and poultry of economic importance in the major region, and to develop effective control measures.

Cooperation: The following State agricultural experiment stations in the region jointly agreed with the Department on the importance of establishing a laboratory for research on this problem, participated in the formulation of the program, and are cooperating in carrying out the objective: Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Tennessee, Kentucky, and Oklahoma.

The Problem and Its Significance: The favorable climate and environment of the southern portion of the United States make it appear particularly ideal for the production of livestock. Under practical conditions, however, the factors that appear to favor diversification of Southern agriculture by an increase in the livestock population also favor the diseases and parasites attacking livestock. In addition to large direct losses, many losses from diseases and parasites are not so evident, being reflected in terms of the stunting of young animals, failure of growing animals

to make proper gains, decrease in the production of meat, milk, wool and eggs, low efficiency of work animals, and uneconomic utilization of feed. Knowledge regarding the nature and methods for control of diseases and parasites will, in addition to safeguarding the livestock population of the region, be an important step leading towards the improvement of rural economic conditions in the South.

Plan and Progress of Work: Representatives of the Department and of the cooperating State stations in planning a coordinated program of fundamental research for the laboratory decided that the first work undertaken should deal with Johne's disease of cattle and bovine internal parasites. The initial problem with Johne's disease was to find some accurate and satisfactory method of diagnosing the disease in its early stages before the infected animals become dangerous as spreaders. The work on internal parasites was directed toward the development of effective control methods.

The laboratory has worked out methods of producing satisfactory quantities of johnin, the product used for testing live animals for the presence of Johne's disease. Efforts are being made to develop a method of measuring the potency of johnin as a step toward standardizing the product so that all johnin used in the country may be of known quality. Investigations are under way to determine whether the johnin developed at the laboratory is of high enough quality to be used in the field as a satisfactory diagnostic agent. Field tests with this product, followed by post-mortem and microscopic examinations of several hundred animals, including both reactors and nonreactors, have given encouraging evidence of the reliability of this diagnostic agent. By using this product, over 10 percent of more than 4,000 cattle tested in 6 Southeastern States were found to be affected with the disease, many of the animals tested having shown no outward symptoms. The results of these widespread tests indicate a greater prevalence of the disease in the region than was heretofore realized.

Evidence is accumulating to prove that at least some of the cattle which suffer from Johne's disease will react to the tuberculin test, even though they do not have tuberculosis. This finding serves as an explanation for at least a part of the reactions to the tuberculin test which sometimes occur in cattle which on autopsy show no visible lesions of tuberculosis. These no-visible-lesion cases have caused a considerable amount of uncertainty and some criticism in the tuberculosis eradication work. This above discovery is, therefore, of considerable importance in the tuberculosis eradication campaign.

Stomach worms and nodular worms are among the most serious of the cattle parasites of the Southeast. No previous experiments with drugs have been successful in controlling these parasites. The work of the laboratory has shown that the drug phenothiazine is a very efficient treatment. In the first field experiments with the drug all treated animals showed prompt improvement in their general condition. The President of the Alabama Beef Producers Association, who had cooperated in the work, expressed his satisfaction with the results obtained. In the herd

of another cattle owner, treatments of phenothiazine were followed by disappearance from the droppings of eggs of both stomach and nodular worms and a decrease in the eggs of other round worms. Blood tests revealed a rapid recovery from anemia, which is characteristic of severe stomach worm infestation. A post-mortem examination of an untreated animal in the same herd disclosed an infestation of over 10,000 stomach worms.

The research with coccidiosis has established the fact that at least a considerable part of the digestive trouble seen in dairy calves between the ages of five and ten weeks is the direct result of infection with coccidia. Rigid but practical sanitary measures developed by the laboratory for the prevention and control of the disturbances resulting from coccidial infection are already being used with success on dairy farms which are cooperating in this study. These measures consist of immediately isolating newborn calves in disinfected pens and keeping them from any contact whatsoever with mature animals (which are carriers of the disease) until the calves are approximately two months of age, at which time they have passed the most critical period for infection.

Regional Research Laboratory for the Improvement of Viability in Poultry (approved by the Secretary December 23, 1937; located at East Lansing, Michigan).

Objective: To determine the causative agent or agents responsible for fowl paralysis; to develop procedures based on pathology, genetics, management, and nutrition; and to discover prophylactic technics for the prevention and control of this disease.

Cooperation: The following State agricultural experiment stations in the northeastern and north central regions jointly agreed with the Department on the importance of establishing a laboratory for research on this problem, participated in the formulation of the program, and ^{are} cooperating in carrying out the objective: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oklahoma, South Dakota, and Wisconsin, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia.

The Problem and Its Significance: It is claimed that approximately one-half of the nearly \$100,000,000 annual loss in the poultry industry in the Northeastern and North-Central States is due to fowl paralysis. Losses to the industry are not only from actual mortality but also from reduced egg production in affected chickens. The disease usually affects chickens after the expense of rearing has been incurred, so that the producer may lose the cost of feeding and housing as well as the original cost of the diseased chickens. The welfare of the poultry industry is contingent upon the development of effective control measures for fowl paralysis.

Plan and Progress of Work: The first experimental chicks in the laboratory program were hatched on April 3, 1939. Approximately 7,000 chicks from ten of the leading strains of White Leghorns were hatched during the

season. Two of the strains proved to be so highly susceptible to the disease that they were discarded. The eight remaining strains had within them lines of high and low viability. In order to determine the effectiveness of breeding for resistance and susceptibility, breeding males from each strain were mated to some full sisters, some half sisters, and some pullets of other strains. One-half of the chicks in each of the identified families of each strain were inoculated with diseased material from affected chickens and one-half were kept as experimental controls. Of the 100 families studied, only two families have had no mortality from fowl paralysis. No fowl paralysis has occurred in the chickens of 39 families in the uninoculated control groups.

Assisting in the development of the program from a number of angles are the cooperative studies at 11 of the State stations of the Northeastern and North-Central regions. The North Dakota, Ohio, and Oklahoma stations are testing the livability of chicks produced by the laboratory under different environments and varying kinds of exposure to infection. Breeding studies to determine the interdependence of vigor and resistance to pullorum disease and fowl paralysis are being conducted by the Illinois and Maryland stations. The Massachusetts and Pennsylvania stations are working on the effectiveness of selective breeding to reduce mortality from this disease in the Rhode Island Red and White Leghorn breeds, respectively. Studies of the effect of diet on susceptibility to fowl paralysis are under way at the Indiana and Michigan stations. At the Iowa station an investigation is being made of the transmission of the iritis type of paralysis through the egg by the sperm or by artificial inoculation with diseased tissues; in addition, an attempt is being made there to determine the association of the so-called nonspecific enteritis of chickens and fowl paralysis. Studies of the pathological changes due to fowl paralysis have been undertaken by the Connecticut (Storrs), Indiana, and Iowa stations and investigations of the cause and transmission of the disease are being made at the Connecticut (Storrs) and Iowa stations. Particular attention is being given in the work at the Connecticut station to the development of specific methods of diagnosis of the disease.

Progress is being made in all of the above phases, but because of the complex nature of the disease and the large number of factors that must be evaluated, no definite conclusions can yet be drawn.

Regional Laboratory for Investigations of the Relationships of the Salinity of Irrigation Waters, and of Soil Conditions, to Plant Growth and Related Factors Involved in a Permanently Successful Irrigated Agriculture in the Western Region (approved by the Secretary December 23, 1937; located at Riverside, California).

Objective: To obtain through research information with respect to (1) the reactions of crop plants and the soil to the several salt constituents at various concentrations in both artificial and natural solutions; (2) the morphological symptoms of crop plants induced by these various salt constituent concentrations; (3) the amount of water which should be applied to soils to avoid harmful salt concentrations; (4) the trend of

salinity conditions in several areas where such problems exist; (5) the possibilities and limitations of adequate and efficient drains in order that the necessary reclamation practices may be put into effect; and (6) the practical application of the laboratory findings on the reaction of crop plants under known and controlled field conditions.

Cooperation: The following State agricultural experiment stations in the western region and the Territory of Hawaii jointly agreed with the Department on the importance of establishing a laboratory for research on this problem, participated in the formulation of the program, and are cooperating in carrying out the objective: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming, and the Territory of Hawaii.

The Problem and Its Significance: Throughout the Western States and Hawaii there are nearly 20,000,000 acres devoted to irrigation farming. On approximately one-half of this area excessive accumulation of soluble salts or alkali, resulting from the use of irrigation water, has seriously impaired or threatened the productivity of the land. There are also extensive areas of land suited for irrigation that are naturally saline and from which the salts must be removed before they can be used for crop production. The situation is complicated by the fact that the reclamation of irrigable land by flushing out the accumulated salts and the necessary drainage of irrigated land generally contaminates the supplies of water used for irrigation in other areas further downstream. The condition is aggravated in proportion to the number of areas served by the same source of supply of irrigation water. As a result of this problem, extensive acreages have been abandoned already or their production seriously impaired. As great as the losses are from excessive accumulation of salts, there are indications that for irrigated lands as a whole even greater losses are sustained by salt concentrations which cause injuries that are not readily recognized. The progress of salt accumulation is often slow, and injurious effects may not be recognized until the productivity of the soil has become seriously affected.

Plan and Progress of Work: The program of the laboratory has been formulated in cooperation with the eleven States of the western region and Hawaii. Little previous work has been done on the problems studied by this laboratory. New research technics, therefore, have to be developed. Progress has been made in this direction.

The tolerance and reactions of common field crops are being studied in greenhouse and outside sand-culture experiments, involving single and combined salts varied from low to very high concentrations. Identical plants are being grown in different localities in soil and culture solutions to determine to what extent extremes of light, temperature, and humidity influence plant tolerance to saline conditions.

Preliminary results of the research show that the nature of the salts present, the character of the soil, and the climatic conditions largely determine the degree of growth reduction in plants. Each kind of plant may react differently from others in response to variation in these

factors. Experiments with eight common crops have indicated that reduced growth results when the concentration of salts exceeds 1,000 to 3,000 parts per million of nutrient solution.

The work of the laboratory has shown that some crops, such as onions, are adversely affected far more by saline irrigation waters in warm climates than by the same irrigation waters in cool climates.

Regional Laboratory for Research into the Relation of Soils to Plant, Animal, and Human Nutrition (approved by the Secretary, January 31, 1939; located at Ithaca, New York).

Objective: To obtain through basic research facts regarding the effects upon plant nutrition of various mineral elements and growth factors in the soil and through plants used as food the effects of these elements and factors on animal and human nutrition.

Cooperation: The following State agricultural experiment stations in the northeastern region jointly agreed with the Department on the importance of establishing a laboratory for research on this problem, participated in the formulation of the program, and are cooperating in carrying out the objective: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia, and other research agencies in the United States.

The Problem and Its Significance: In recent years it was observed that physiological disorders common among men and animals in certain sections do not occur in other sections of the country. This observation has led to an appreciation of the importance of the effects on man and animals when plant or animal products grown in certain soil areas are used as food. Some soils contain undesirable elements which may inhibit the growth of plants and affect adversely the growth of animals. Knowledge of the number of mineral elements of biological significance has increased notably in recent years. At the same time, additional and important functions have been ascribed to some that long have been known to be essential.

The roles of such elements as calcium, phosphorus, sulfur, sodium, and chlorine, used in relatively large amounts by animals and man, have been fairly well understood for many years. Another group of elements is equally essential although needed in only small amounts. The number of elements in this group has been added to steadily. At present iron and copper appear necessary for hemoglobin formation, cobalt to some extent also and for correcting the so-called "Bush disease" of cattle in some areas; iodine for normal functioning of the thyroid, manganese for reproduction (also prevents perosis in chickens), magnesium for normal functioning of nerves, and zinc for reasons not well understood. The status of a rather long list of elements remains in doubt, chiefly because of insufficient study.

Many or all of these elements are generally supplied to the body through plants consumed as food. The dietary and nutritional disturbances caused by their lack are observed only when they are not present.

In past years a sufficient amount of these elements was present in most soil in quantities large enough to supply the needs of the plants and also the animals which ate them. More recently, as additional regions have been opened to crop production, some of them have been found to be deficient in certain elements, and the meager supply in other soils has been so reduced through crop removal with no replenishment that the results caused by such deficiencies are now becoming acute. The whole problem becomes one in urgent need of investigation for populations of men and animals, especially so because of the possibility of replenishing these elements through direct application of fertilizers containing them and through other agricultural practices.

Plan and Progress of Work: Preliminary to actual research at the laboratory, an exhaustive survey of literature in regard to cobalt in soils led to several important conclusions. There is evidence to indicate that mineral soils well supplied with organic matter in the upper layers as a result of natural soil-forming processes may normally contain amounts of cobalt adequate for the animal. Recently developed soils may contain inadequate amounts of cobalt because of the time factor that has prevented accumulations of this element in the organic matter of the upper layers. There seemed to be sufficient evidence of a direct relationship between magnesium and cobalt in soils to make further studies along this line worth while. Some highly calcareous soils, usually of marine origin, either contain very little cobalt or prevent the assimilation of this element by plants.

In culture solutions extremely small amounts of cobalt have been reported as toxic to some species of plants. These experiments indicate that mature plants grown in culture solutions containing cobalt are seldom normal. In cases where no toxicity or only a slight stimulus was observed, the effect of cobalt on the complete life cycle of the plant has seldom been determined.

The program of the laboratory is planned to add information on the role of the various mineral elements, vitamins, and other growth-promoting substances in plant nutrition and through the plant on animal nutrition. On the basis of such information efforts will be made to modify or correct soil conditions through fertilizer, spraying, irrigation, or other practices.

The construction of the laboratory building, as well as of all service lines, including steam, water, gas, electric, and telephone lines and sanitary water sewers, has been completed. The plans and specifications for this construction were completed, at no expense to the Government, by architects of Cornell University. Similarly, Cornell University architects have prepared detailed plans for the development of the Government plot as a whole, as regards grading, walks, landscaping, etc. The University has constructed a surfaced road in front of the laboratory building and has erected a building in which rooms for small animals will be furnished gratis to the Government.

Progress to date has been concerned primarily with organization of the project providing physical plant facilities and the exhaustive survey

of the literature discussed above. Research at the laboratory has been in progress since the beginning of the fiscal year.

A preliminary study indicates that yellow corn with double the usual number of chromosomes is markedly higher in carotene (vitamin A) content than similar corn of the usual genetic constitution.

Tomatoes are a particularly important crop from the standpoint of the human diet. Experiments have been undertaken at the laboratory to determine the influence of mineral nutrition of tomatoes on their vitamin and mineral dietary value for humans. Some 1,100 tomato plants are being grown in sand cultures, using 56 combinations of nutrient solutions. Observations are being made on the growth of the plants themselves and the fruits, when mature, will be analyzed for their components which are of nutritive value for humans.

PASSENGER-CARRYING VEHICLES

The estimate for the purchase of passenger-carrying vehicles for work under the Special Research Fund contemplates an increase of \$500 (\$2,150 in 1941; \$2,650 estimated for 1942) for this purpose. This \$2,650 will permit the needed replacement of three vehicles, at a net average cost of \$633 each, when exchange allowances are taken into account, and the purchase of one additional vehicle. This car is needed in connection with special research projects under section 1 of the Act and is subject to the limitation of \$750 maximum cost applicable to the Government as a whole.

At least one car is essential for each regional laboratory to enable the technical men to visit the different parts of the region, including the State experiment stations located therein, all of which are cooperating in the laboratory projects of their region. In the case of laboratories established in the larger regions covering a wide area, those involving extensive cooperative relationships and those including the work of more than one bureau, two or more cars may be required to enable the technical men to visit the different parts of the region. Automobile transportation is also necessary in connection with field projects conducted under this fund in the case of those investigations for which common carriers are not available, are impracticable, or are less economical.

The three cars to be replaced are for regional laboratory projects under section 4 of the Bankhead-Jones Act of June 29, 1935. One of these automobiles has been in constant use since 1937 and two of them have been in constant use since 1938. These machines have been operated under a wide variety of conditions of use, ranging from city streets to rough country roads. It is estimated that the average performance of these cars by the time they will be turned in will be approximately 43,000 miles. Experience has demonstrated that cars of the age of those to be turned in will not operate efficiently or economically beyond this mileage, and it appears to be distinctly in the best interests of the work to turn them in during the fiscal year 1942 as herein provided.

EXTENSION SERVICE

EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

General StatementI. Organization and Administration.

Extension work in agriculture and home economics is a cooperative system, the United States Department of Agriculture cooperating with the State agricultural colleges, county governing bodies, and local groups of rural people in employing county and State extension agents to carry on extension work with rural men, women, and boys and girls on their farms and in their homes and communities.

The organization, financing, and conduct of the work is developed in accordance with -

a. The Smith-Lever Act and other acts of Congress and legislative acts of the States.

b. A general memorandum of agreement between the U.S. Department of Agriculture and each State agricultural college.

c. Individual project agreements between the U.S. Department of Agriculture and each State agricultural college covering each major line of extension activity in a State.

d. Annual plans of work prepared in the State for the principal extension activities, which are reviewed for approval by the Extension Division of the U.S. Department of Agriculture.

e. Annual extension budgets which show, for each State, sources and amounts of cooperative extension funds and their allocation by projects and personnel, for each fiscal year, subject to the approval of the Federal Director of Extension Work.

f. Regulations covering the expenditures of cooperative extension funds of Federal, State, or county origin.

g. Annual review of the expenditure of such funds, and the work carried on in each State.

A. Extension Service, U. S. Department of Agriculture:

Cooperative extension work is headed nationally by the Extension Service of the United States Department of Agriculture, with a director of extension in charge. This agency administers the various acts of Congress concerning cooperative extension work and, in general, supervises the work in order that the purposes of the acts may be carried out. In addition to administering the phases outlined above, the Extension Service -

Assists in coordinating the extension activities of the various bureaus of the Department with the needs and work in the States.

Represents the Department and other agencies of the Federal Government dealing with agriculture in developing the educational work carried on by the State extension services necessary in advancing the public programs for agriculture.

Carries subject-matter information from the various agencies of the Department to State and county extension workers.

Prepares and distributes illustrated material, including exhibits, motion pictures, slides and films, photographs, and charts, as well as circulars, bulletins, press and other written material, for the use of State and county extension workers.

Assists county and State extension workers in studying and analyzing the needs of rural people and helps them direct programs and procedures currently best fitted to meet their needs.

Makes current studies of extension work and reports of accomplishments and progress.

B. The State extension service:

In each State, and in Hawaii, Puerto Rico, and Alaska, the State college of agriculture maintains a distinct administrative division of the college, i. e., the extension service, for the management and conduct of the cooperative extension work in the State and its several counties and communities, in conformity with the provisions of the several acts of Congress governing cooperative extension work and the various State acts. This service is in charge of the State director of extension, who is jointly responsible to the president (or dean) of the State college of agriculture and the director of extension of the United States Department of Agriculture. Located at the college, also, is the staff of State-wide extension workers in which are included administrative and supervisory assistants, extension specialists in the major fields of agricultural and home-economics subject matter, and clerical workers.

The State extension service is responsible for the administration of all funds allotted to extension work in the State.

The State extension service is responsible for drawing up and carrying out the various projects, plans of work, budgets, and reports, in cooperation with the Federal Extension Service, as outlined previously herein.

C. The County extension service:

The State extension services have established, and maintain in cooperation with the people locally, county offices of cooperative extension work at which may be stationed county agricultural agents, home-demonstration agents, 4-H Club agents, assistant agents, and negro agents. These offices are usually located at the county seats. The county extension agents work under the general direction and supervision

of the director of extension or his designated assistants, in close cooperation with the local sponsoring agencies, which may include county extension organizations of representative rural men, women, boys, and girls. The services of the extension agent are available to all the people in a county.

The county and State extension workers are representatives of the State college of agriculture and the U.S. Department of Agriculture and are jointly responsible to these agencies. They work as public officials and teachers with individuals and groups and in an advisory capacity with various rural organizations. They foster and encourage new movements and organizations where needed. The full responsibility for the organization or activities involving group or community effort is in the hands of the people themselves.

Extension work is educational and plays no part in regulatory, police, legislative, or business activities except to carry essential information and to encourage the people to work out their programs with the help of competent local leadership.

Through this system of extension agents -- Federal, State, and county -- cooperative extension work is enabled to reach rural people on their farms and in their homes in every community of the United States and its territorial possessions. The educational work and research of the State colleges of agriculture and the U. S. Department of Agriculture is taken to rural people and adapted to their needs by the agents resident in the counties through personal contact and by means of actual demonstrations on the farms and in the homes. Furthermore, the extension system assists in carrying the national public programs for agriculture to the people locally, interpreting these programs and encouraging participation in them.

II. The Extension Service operates in three major fields: (a) Educational work based on results of research and benefits of national programs for agriculture; (b) cooperative relations with public programs for agriculture; and (c) cooperation in agricultural planning.

A. Educational:

1. Organized extension projects and programs.
2. Community cultural development.
3. Individual problems.
4. Local emergency problems.
5. Seasonal and current information.
6. In addition, extension agents help to interpret national and State programs and policies for agriculture in terms of local situations, and aid the people in adjusting their plans in terms of these programs and

policies. These National and State programs may be classified as follows:

- a. Adjustment and conservation (agricultural conservation, soil conservation, farm security, farm credit, forestry, land use). These national programs are concerned with:

The maintenance and restoration of soil fertility.
 A more stable supply of farm products.
 More stable prices for farm products.
 More stable farm incomes.
 A share of the national income that will give a balanced economy.
 A higher percentage of farmers owning their own land.
 Greater security of tenure.
 The encouragement of democratic processes in developing and administering the national programs.

- b. Health and sanitation.
- c. Animal and plant disease and insect control campaigns.
- d. Emergencies, drought, flood, etc.

The Extension Service also cooperates with other public and private agencies sponsoring rural programs (county libraries, producers' associations, cooperative marketing or purchasing associations, public health, recreation groups, etc.).

B. Cooperative relations with public programs for agriculture:

1. The Agricultural Adjustment Act of 1938 provides that the State director of extension shall be ex officio a member of the State agricultural conservation committee and that the county agricultural conservation committee may select the county agricultural extension agent as secretary. If the agent shall not have been elected secretary, he shall be ex officio a member of the county committee, without the power to vote.
2. By regulation, the State director of extension may serve as a member of State advisory committees for other Federal programs, such as farm security, and recommend names of farmers and others to the Secretary of Agriculture for appointment as members of such committees. Similarly, county agents may recommend names of farmers for appointment as members of county committees. In most cases, too, the agent works closely with these committees and with the Federal representatives of such agencies located in the county or region.

C. Cooperation in Agricultural planning:

The Extension Service is charged with the responsibility of getting local people to study the larger problems based on land use and rural life which may involve adjustments to changing economic and social situations,

to interpret these findings in terms of regional, national, and international facts and movements, and to cooperate with the national administration in the development of agricultural land-use policies which may implement the broad objectives of the national programs for agriculture.

III. Aims in Extension:

- A. In general, the larger aims in extension education should guide extension workers and rural people in defining local problems and in developing programs for extension work best fitted to the needs of the people. Included among these aims are the following:
 1. To raise and stabilize farm income through:
 - (a) The national programs for agriculture.
 - (b) Farm- and home-management adjustments and cooperative efforts of farmers.
 - (c) Improvement in farm and homemaking practices.
 2. To improve rural home and family life.
 3. To improve rural health by means of programs drawn to meet specific local needs.
 4. To assist rural young people in obtaining better cultural and vocational preparation for life.
 5. To assist in meeting the social and civic problems of rural communities.
 6. To maintain and improve standards of ethical culture.
 7. To develop the most wholesome recreation.
- B. Supplementing such aims are certain objectives as those developed for the 4-H Club work:
 1. To help rural young people to develop desirable ideals and standards for farming, homemaking, community life, and citizenship, as well as a sense of responsibility for their attainment.
 2. To afford rural boys and girls technical instruction in farming and homemaking, in order that they may acquire skill and understanding in these fields and a clearer vision of agriculture as a basic industry and of homemaking as a worthy occupation.
 3. To provide rural boys and girls an opportunity to "learn by doing" through conducting certain farm or home enterprises and demonstrating to others what they have learned.
 4. To instill in the minds of rural boys and girls an intelligent understanding and an appreciation of nature and of the environment in which they live.

5. To teach rural boys and girls the value of research and to develop in them a scientific attitude toward the problems of the farm and the home.
6. To train rural boys and girls in group action, to the end that they may increase their accomplishments and, through associated efforts, better assist in solving rural problems.
7. To develop in rural boys and girls habits of healthful living, to provide them with information and direction in the intelligent use of leisure, and to arouse in them worthy ambitions and a desire to continue to learn, in order that they may live fuller and richer lives.
8. To teach and to demonstrate to rural boys and girls methods designed to improve practices in agriculture and homemaking, to the end that farm incomes may be increased, standards of living improved, and the satisfactions of life enhanced.

IV. Methods of Work:

- A. As stated in the Smith-Lever Act, cooperative extension work consists of giving instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in the State college.
- B. Extension work is based on the local problems of rural people. Extension agents, with the aid of supervisors, extension specialists, Federal and State agencies, rural local leaders, and local agencies concerned, make studies and surveys of agricultural and homemaking conditions. These studies deal with such matters as character of the soil, land use, production yields, marketing trends, consumption demand, local farm and home practices, health and nutrition, family food supplies, housing and equipment, and human relations.
- C. Extension agents assist in interpreting data from the local surveys with the help of supervisors and local rural leaders. They define problems to be attacked in a local extension program.
- D. They endeavor to find solutions for problems which they have defined. They do this with the aid of supervisors, State and Federal extension specialists, State and Federal research agencies, State Departments of Agriculture, farmers' organizations, marketing and transportation agencies, and local farm and business leaders.
- E. In consultation with representatives from the above agencies and with local committees, they develop long-time goals and formulate current extension programs based on problems indicated by studies and analyses. These programs are usually revised annually.
- F. The extension workers undertake to carry out these programs in such a manner that the majority of rural families affected will apply new or improved methods, practices, and principles. Extension workers use teaching means and agencies as follows:

1. Disseminate information by means of meetings, demonstrations, farm and home visits, tours, telephone calls, news articles, radio talks, film strips, moving pictures, circulars, and direct mail matter.
 2. Select demonstrators and other local leaders to assist in teaching better home practices and skills on the farm, in the home, and in the community.
 3. Encourage the organization of rural people for social and educational purposes.
 4. Obtain a report of accomplishment in each major enterprise and with specialists and local leaders replan the work, redirect the subject matter, and reset the goals, thus developing a flexible educational service based on local needs and situations.
- G. Extension agents prepare annually plans of work, as well as a report of progress and achievement, so that administrative officers at the State agricultural college and the United States Department of Agriculture, as well as county officials, rural organization leaders, and others may know and have available facts relating to the problems and the cooperative extension work in the county.
- H. They summarize these reports in order to get a measure of accomplishment and to find a basis for modifying objectives, subject matter, and teaching procedures another year.
- I. They maintain friendly relations with the editors of newspapers and other periodicals in the county and with leaders of rural social and business organizations, leading farm men and women, business men, ministers, school officials, health officials, and others, enlisting their interest and cooperation in advancing the program of extension work.

THE ESTIMATES FOR FISCAL YEAR 1942

The estimates for the Extension Service are divided into two parts, (1) "Payments to States and Territories", all of which are on the basis of specific authorizations in law, and (2) "Salaries and Expenses", composed of two items providing funds to be expended in Washington for the maintenance of a supervisory and clerical staff for the general administration and coordination of extension work and a technical and clerical staff for the preparation and distribution of extension information.

(1) Payments to States and Territories

With reference to payments to the States and Territories, the entire amount is paid directly to a designated officer in each State and Territory in accordance with the various acts of Congress, and the funds are disbursed by them in accordance with budgets and programs of work submitted by the directors of extension and approved by the Secretary of Agriculture. The acts require some offset by States and Territories before they become available, so that, as it works out, the extension work is financed about 55 percent from Federal sources and about 45 percent from State and local sources. The funds are used by the States for the support of State and county extension work with rural people. The estimates for Federal payments to States and Territories for the fiscal year 1942 are the same as the appropriation for the fiscal year 1941 except for a request for an increase of \$38,000 for Puerto Rico.

Funds available for fiscal year 1941 for direct payments to States, Hawaii, Alaska, and Puerto Rico for cooperative agricultural extension work total \$18,498,083. In addition, there is available \$93,290 from appropriations direct to the Department of Agriculture, making a grand total of \$18,591,373 available to the States and Territories for the fiscal year 1941. The Budget Estimates for the fiscal year 1942 provide for total appropriations of \$18,629,373 for these purposes, involving an increase of \$38,000 for Puerto Rico as compared with fiscal year 1941. (See Table 1.)

With the exception of funds provided for cooperative farm forestry extension work, which are disbursed directly by the Department, Federal funds for cooperative agricultural extension work are allotted and paid directly to the States, Hawaii, Alaska, and Puerto Rico in accordance with the provisions of the several different basic authorization acts. (See Table 2.)

The use of all these funds is indicated in greater detail in Tables 1, 2, 3, 4, and 5. Table 1 is a summary of all the funds available to the States and Territories. Table 2 gives the estimate of direct payments to the States and Territories for 1941, indicating those which require offset by State, county, or local funds, those where such offset is not required, and the basis of allotment. Table 3 shows, by States, the allotments available to States and Territories for 1941 and 1942 as contemplated by the Budget estimates. Table 4 shows, by States, Federal funds and funds arising from sources within the respective States. Table 5 shows the various classes of field agents employed with extension funds.

Table 1

Statement showing appropriation items and amounts available to the States in 1941 and estimated for 1942.

Item	Appropriation, 1941	Budget estimate, 1942	Increase
<u>Payments to States, Hawaii, Alaska, and Puerto Rico for agricultural extension work:</u>			
<u>Permanent Specific Appropriation:</u>			
Smith-Lever Act.....	\$4,701,165	\$4,701,165	- -
<u>Agricultural Appropriation Act:</u>			
Capper-Ketchum Act.....	1,480,000	1,480,000	- -
Extension work, Act of April 24, 1939.....	203,000	203,000	- -
Extension work, section 21, Bankhead-Jones Act.....	12,000,000	12,000,000	- -
Alaska Acts.....	23,918	23,918	- -
Puerto Rico Act.....	90,000	128,000	+ \$38,000
 Total, Agricultural Appropriation Act.....	 13,796,918	 13,834,918	 +38,000
 Total payments made directly to States and Territories.....	 18,498,083	 18,536,083	 +38,000
<u>Amounts allotted to States and Territories, but disbursed by Department of Agriculture:</u>			
Cooperative farm forestry:			
Clarke-McNary Act, Section 5....	58,530	58,530	- -
Norris-Doxey Act.....	34,760	34,760	- -
 Total allotments to States and Territories.....	 93,290	 93,290	 - -
 Total direct payments and Department allotments to States and Territories	 18,591,373	 18,629,373	 + 38,000

Table 2.

Statement of direct payments to States, Hawaii, Alaska, and Puerto Rico, indicating those requiring offset by States and Territories, those not requiring such offset, and basis of distribution, as estimated for 1942.

Item	Total estimate, 1942	Amount to be paid without offset	Amount requiring offset and basis of allotment	
			Amount	Basis of distribution
(1) Permanent annual appropriation (Smith-Lever Act).....	\$4,701,165	\$500,000(a)	\$4,201,165	Rural population
(2) Capper-Ketcham extension work.....	1,480,000	980,000(b)	500,000	" "
(3) Extension work, Act of April 24, 1939.....	203,000	203,000	- -	Determined by Secretary of Agriculture
(4) Extension work, section 21, Bankhead-Jones Act.....	12,000,000	12,000,000(c)	- -	Farm population
(5) Alaska.....	23,918	20,000(d)	3,918	Rural population
(6) Puerto Rico.....	128,000	128,000	- -	Specified by law
Total, direct Federal payments.....	18,536,083	13,831,000	4,705,083	

(a) \$10,000 to each State, Hawaii, and Puerto Rico.

(b) \$20,000 to each State, and Hawaii.

(c) \$20,000 to each State, and Hawaii (balance on farm population basis)

(d) \$10,000 to Alaska (Act of Feb. 23, 1929).

\$10,000 to Alaska (Act of June 20, 1936).

Funds from other sources

The Federal funds for cooperative agricultural extension work, for the fiscal year 1941, \$18,590,925, are supplemented by funds from within the States estimated at \$14,603,455, thus making available from Federal, State, and local sources an approximate sum of \$33,194,380 for extension work.

See Table 3 for Federal allotments to States and Territories for fiscal years 1941 and 1942.

See Table 4 for extension funds from all sources by States and Territories for fiscal year 1941.

Table 3.--ALLOTMENTS TO STATES AND TERRITORIES UNDER
FEDERAL FUNDS FOR COOPERATIVE AGRICULTURAL EXTENSION WORK
(INCLUDING CLARKE-McNARY AND NORRIS-DOXEY EXTENSION ALLOTMENTS)

State	Appropriation, 1941	Budget estimate, 1942	Increase
Alabama.....	\$698,302.82	\$698,302.82	-
Arizona.....	117,005.21	117,005.21	-
Arkansas.....	580,410.37	580,410.37	-
California.....	404,607.96	404,607.96	-
Colorado.....	214,578.52	214,578.52	-
Connecticut.....	131,490.02	131,490.02	-
Delaware.....	76,598.09	76,598.09	-
Florida.....	222,673.77	222,673.77	-
Georgia.....	735,958.71	735,958.71	-
Idaho.....	156,837.74	156,837.74	-
Illinois.....	583,455.90	583,455.90	-
Indiana.....	467,592.67	467,592.67	-
Iowa.....	532,774.33	532,774.33	-
Kansas.....	403,995.92	403,995.92	-
Kentucky.....	630,340.60	630,340.60	-
Louisiana.....	459,016.85	459,016.85	-
Maine.....	157,686.44	157,686.44	-
Maryland.....	196,957.15	196,957.15	-
Massachusetts.....	138,855.54	138,855.54	-
Michigan.....	466,531.99	466,531.99	-
Minnesota.....	487,217.82	487,217.82	-
Mississippi.....	686,692.30	686,692.30	-
Missouri.....	605,751.47	605,751.47	-
Montana.....	174,597.64	174,597.64	-
Nebraska.....	345,378.63	345,378.63	-
Nevada.....	74,178.64	74,178.64	-
New Hampshire.....	94,820.82	94,820.82	-
New Jersey.....	172,749.45	172,749.45	-
New Mexico.....	142,485.31	142,485.31	-
New York.....	488,967.68	488,967.68	-
North Carolina.....	829,334.56	829,334.56	-
North Dakota.....	249,209.65	249,209.65	-
Ohio.....	599,205.91	599,205.91	-
Oklahoma.....	554,774.72	554,774.72	-
Oregon.....	186,958.47	186,958.47	-
Pennsylvania.....	624,374.05	624,374.05	-
Rhode Island.....	60,380.95	60,380.95	-
South Carolina.....	500,064.02	500,064.02	-
South Dakota.....	261,529.04	261,529.04	-
Tennessee.....	636,193.99	636,193.99	-
Texas.....	1,192,057.41	1,192,057.41	-
Utah.....	122,117.04	122,117.04	-
Vermont.....	114,367.63	114,367.63	-
Virginia.....	535,358.69	535,358.69	-
Washington.....	220,243.49	220,243.49	-
West Virginia.....	319,065.82	319,065.82	-
Wisconsin.....	488,805.21	488,805.21	-
Wyoming.....	109,875.74	109,875.74	-
Alaska.....	23,918.00	23,918.00	-
Hawaii.....	127,891.42	127,891.42	-
Puerto Rico.....	186,689.00	224,689.00	+\$38,000
Total.....	18,590,925.17	18,628,925.17	+38,000

Table 4.--Total allotments to States and Territories from Federal (including U. S. D. A.) and State sources for extension work, fiscal year 1941.

State	Total	Total Federal funds	Total within the States
Alabama.....	\$975,502.82	\$698,502.82	\$277,200.00
Arizona.....	185,752.24	117,005.21	68,747.03
Arkansas.....	913,949.37	580,410.37	333,539.00
California.....	996,340.00	404,607.96	591,732.04
Colorado.....	373,950.52	214,578.52	159,372.00
Connecticut.....	273,551.02	131,490.02	142,061.00
Delaware.....	94,273.09	76,598.09	17,675.00
Florida.....	552,406.44	222,673.77	329,732.67
Georgia.....	1,075,368.71	735,958.71	339,410.00
Idaho.....	277,229.79	156,837.74	120,392.05
Illinois.....	1,112,389.31	583,455.90	528,933.41
Indiana.....	968,534.27	467,592.67	500,941.60
Iowa.....	1,213,834.81	532,774.33	681,060.48
Kansas.....	923,166.67	403,995.92	519,170.75
Kentucky.....	931,146.60	630,340.60	300,806.00
Louisiana.....	751,866.85	459,016.85	292,850.00
Maine.....	238,262.51	157,686.44	80,576.07
Maryland.....	389,770.69	196,957.15	192,813.54
Massachusetts.....	485,424.54	138,855.54	346,569.00
Michigan.....	828,067.99	466,531.99	361,536.00
Minnesota.....	807,298.82	487,217.82	320,081.00
Mississippi.....	1,043,660.30	686,692.30	356,968.00
Missouri.....	922,275.00	605,751.47	316,523.53
Montana.....	355,815.54	174,597.64	181,217.90
Nebraska.....	621,489.63	345,378.63	276,111.00
Nevada.....	137,633.66	74,178.64	63,455.02
New Hampshire.....	244,802.16	94,820.82	149,981.34
New Jersey.....	461,203.67	172,749.45	288,454.22
New Mexico.....	255,833.31	142,485.31	113,348.00
New York.....	1,759,780.85	488,967.68	1,270,813.17
North Carolina.....	1,233,233.96	829,334.56	403,399.40
North Dakota.....	583,850.02	249,209.65	134,640.37
Ohio.....	1,043,505.91	599,205.91	444,300.00
Oklahoma.....	889,574.72	554,774.72	334,800.00
Oregon.....	526,175.90	126,958.47	339,217.43
Pennsylvania.....	1,026,251.05	624,374.05	401,877.00
Rhode Island.....	80,487.69	60,380.95	20,106.74
South Carolina.....	703,398.02	500,064.02	203,334.00
South Dakota.....	367,153.89	261,529.04	105,624.85
Tennessee.....	922,683.87	636,193.99	286,489.88
Texas.....	2,044,180.28	1,192,057.41	852,122.87
Utah.....	204,975.04	122,117.04	82,858.00
Vermont.....	216,767.63	114,367.63	102,400.00
Virginia.....	930,694.69	535,358.69	395,336.00
Washington.....	410,985.56	220,243.49	190,742.07
West Virginia.....	515,544.82	319,065.82	196,479.00
Wisconsin.....	777,785.39	488,805.21	288,980.18
Wyoming.....	214,400.00	109,875.74	104,524.26
Alaska.....	32,418.00	23,918.00	8,500.00
Hawaii.....	165,062.30	127,891.42	37,170.88
Puerto Rico.....	334,670.00	186,689.00	147,981.00
Total.....	33,194,379.92	18,590,925.17	14,603,454.75

As the major purpose of these payments to States is for the employment of extension workers in counties and colleges, the following comparative statement is submitted showing agents employed:

Table 5. Extension field agents employed June 30, 1937, 1938, 1939, and 1940.

	June 30, 1937	June 30, 1938	June 30, 1939	June 30, 1940
State Supervisors.....	632	624	625	635
Subject-Matter Specialists:				
Full-time specialists.....	1,152	1,198	1,205	1,269
Part-time specialists.....	307	353	365	368
Special A.A.A. State workers..	8	--	--	--
Total specialists.....	1,467	1,551	1,570	1,637
Total with headquarters at colleges.....	2,099	2,175	2,195	2,272
County Workers:				
Agricultural agents.....	3,809	3,825	3,911	3,929
Home demonstration agents.....	1,845	1,894	1,960	2,035
Boys' and girls' club agents..	560	337	341	342
Negro extension agents.....	416	451	462	490
Special A.A.A. county workers.	621	595	--	--
Total county workers.....	7,051	7,102	6,680	6,796
Total.....	9,150	9,277	8,875	9,068

Number of counties in the States, Hawaii, and Puerto Rico.....	3,154
Number of counties now having one or more agents.....	2,994

A discussion of the activities under the various appropriation items follows.

(a) CAPPER-KETCHAM EXTENSION WORK

Appropriation Act, 1941	\$1,480,000
Budget estimate, 1942.....	<u>1,480,000</u>

PROJECT STATEMENT

Project	1940	1941 (estimated)	1942 (estimated)
Payments to States and Hawaii for further development of cooperative agricultural extension work (Capper-Ketcham extension work).....	\$1,480,000	\$1,480,000	\$1,480,000

WORK UNDER THIS APPROPRIATION

This appropriation provides for the further development of agricultural extension work as specifically authorized by the provisions of the Capper-Ketcham Act of May 22, 1928 (7 U. S. C. 343a, 343b) and supplements the permanent annual appropriation provided under the Smith-Lever Act of May 8, 1914 (7 U. S. C. 341-348). The Capper-Ketcham Act authorizes an appropriation of \$980,000 to be divided at the rate of \$20,000 to each State and to Hawaii, without requirement for State and Territorial offset, and an additional \$500,000 to be divided among the States and Hawaii on the basis of rural population, the allotments from this additional \$500,000 to be met dollar for dollar by the States or Territory before the money becomes available. The Act further provides that at least 80 percent of the funds appropriated under this authorization shall be expended for salaries of county extension agents and that the extension agents appointed under its provisions shall be men and women in fair and just proportions.

As these funds are merged with all other extension funds, the particular work under this project cannot be separated and for the combined statement see work under the project for the basic act, "Permanent Specific Appropriation" (Smith-Lever Act), which inaugurated the national system of cooperative extension work in agriculture and home economics in connection with the Land-Grant colleges.

The State allotments are paid directly to a designated officer in each State and are disbursed by the States in accordance with budgets and programs of work submitted by the State directors of extension and approved by the Secretary of Agriculture. Expenditures by the States from this and other cooperative extension appropriations are subject to annual examination by representatives of the Department.

(b) EXTENSION WORK, ACT OF APRIL 24, 1939

Appropriation Act, 1941.....	\$203,000
Budget estimate, 1942.....	<u>203,000</u>

PROJECT STATEMENT

Project	1940	1941 (estimated)	1942 (estimated)
Payments to States for further development of cooperative agricultural extension work (Extension work, Act of April 24, 1939).....	\$203,000	\$203,000	\$203,000

WORK UNDER THIS APPROPRIATION

This appropriation provides for further development of agricultural extension work as specifically authorized by the provisions of the Act of April 24, 1939, (7 U. S. C. 343c-1) and supplements the permanent annual appropriation provided under the Smith-Lever Act of May 8, 1914, (7 U. S. C. 341-348).

The Act of April 24, 1939 (7 U. S. C. 343c-1) authorized an annual appropriation of \$300,000 for distribution to the States for the further development of cooperative agricultural extension work. This authorization contemplated provision for payments to 21 States to prevent decreases in their total allotments of Federal funds for cooperative extension work and some increases for payments to States in which reclamation projects are conducted for the purpose of increasing extension work with settlers on Federal reclamation projects. As to the first purpose, such decreases would otherwise have occurred because of the elimination from the appropriation for 1940 of two items carried in the 1939 Appropriation Act, known as the Supplementary Cooperative Extension Work item, in the amount of \$395,000, and the Additional Cooperative Extension Work item in the amount of \$275,000. The sum of \$203,000 appropriated for the fiscal year 1940, was apportioned among 21 States to prevent decreases in their total allotments of Federal funds for cooperative extension work, as shown by the table which follows. No appropriation was made for the second purpose. The estimated apportionment for 1942 for this appropriation is the same as the actual apportionments for fiscal years 1940 and 1941, which are as follows:

Arizona.....	\$6,952	Montana.....	\$19,670	So. Dakota....	\$21,406
Colorado.....	15,430	Nebraska.....	6,681	Utah.....	8,735
Connecticut.....	8,036	Nevada.....	12,424	Vermont.....	1,520
Florida.....	8,462	New Hampshire...	4,150	Washington....	905
Idaho.....	9,450	New Jersey.....	13,946	Wyoming.....	<u>18,995</u>
Maine.....	3,840	New Mexico.....	8,330		
Maryland.....	3,740	North Dakota....	6,416	Total.....	203,000
Massachusetts....	7,130	Oregon.....	16,782		

As these funds are merged with all other funds allotted to the States, the particular work under this project cannot be separated. The State allotments are paid directly to a designated officer in each State and are disbursed by the States in accordance with budgets and programs of work submitted by the State directors of extension and approved by the Secretary of Agriculture. Expenditures by the States from this and other cooperative extension appropriations are subject to annual examination by representatives of the Department.

(c) EXTENSION WORK, SECTION 21, BANKHEAD-JONES ACT

Appropriation Act, 1941..... \$12,000,000
 Budget estimate, 1942..... 12,000,000

PROJECT STATEMENT

Project	1940	1941 (estimated)	1942 (estimated)
Payments to States and Hawaii for cooperative agricultural extension work (Extension work, section 21, Bankhead-Jones Act).....	\$12,000,000	\$12,000,000	\$12,000,000

WORK UNDER THIS APPROPRIATION

This appropriation provides for the further development of cooperative extension work and is specifically authorized by the provisions of section 21, title II, of the Bankhead-Jones Act of June 29, 1935 (7 U. S. C. 343e), and augments the cooperative agricultural extension funds provided by the Smith-Lever Act of 1914, and the Capper-Ketcham Act of May 22, 1928. While no State offset is required for the funds under this Act, these funds are available to the States only after they have met the required State offset to funds provided under the permanent Smith-Lever Act, and the Capper-Ketcham Act. Under section 21 of the Bankhead-Jones Act, \$20,000 is allotted to each State and to Hawaii. The remainder of the funds is then allotted to each State and Hawaii on the basis of farm population.

As this fund is merged with all other extension funds, the particular work under this appropriation cannot be separated. For the combined statement, see work under the project for the basic act "Permanent Specific Appropriation" (Smith-Lever Act), which inaugurated the national system of cooperative extension work in agriculture and home economics in connection with the Land-Grant colleges.

The Federal grants are paid directly to a designated officer in each State and are disbursed by the States in accordance with budgets and programs of work submitted by the State directors of extension and approved by the

Secretary of Agriculture. Expenditures by the States from this and other cooperative extension appropriations are subject to annual examination by representatives of the Department.

(d) ALASKA

Appropriation Act, 1941..... \$23,918
 Budget estimate, 1942..... 23,918

PROJECT STATEMENT

Project	1940	1941 (estimated)	1942 (estimated)
1. Extension of the Smith-Lever Act to Alaska (Act of Feb. 23, 1929).....	\$13,918	\$13,918	\$13,918
2. Extension of the Capper-Ketcham Act to Alaska (Act of June 20, 1936).....	7,500	10,000	10,000
Total.....	21,418	23,918	23,918

WORK UNDER THIS APPROPRIATION

The provisions of the Smith-Lever Act of 1914 and the Capper-Ketcham Act of 1928 were extended to Alaska by special acts of Congress to provide for cooperative agricultural extension work in the Territory, as follows:

1. Extension of the Smith-Lever Act to Alaska (Act of Feb. 23, 1929):

The extension of the Smith-Lever Act to Alaska is specifically authorized by the Act approved February 23, 1929 (7 U. S. C. 386c). Under the provisions of this act, \$10,000 is appropriated annually to Alaska without requirement of Territorial offset, and the remainder (\$3,918) must be matched by Territorial funds used for extension work. Experiment stations have been maintained in Alaska for many years but cooperative agricultural extension work was not systematically begun among farmers until 1931.

2. Extension of the Capper-Ketcham Act to Alaska (Act of June 20, 1936):

Funds provided under the Act of February 23, 1929, were supplemented by the extension of the Capper-Ketcham Act to Alaska, as specifically authorized by an act approved June 20, 1936 (7 U. S. C. 343e). Under the provisions of this act, \$2,500 was authorized for the fiscal year 1937, to be increased on recommendation of the Secretary of Agriculture by this amount annually until a total of \$10,000 is reached. No appropriation was made for the fiscal year 1937 but \$5,000 was appropriated under this act for the fiscal year 1938,

\$7,500 for each of the fiscal years 1939 and 1940, and \$10,000 for the fiscal year 1941. The act also provides that the several established judicial divisions of the Territory of Alaska, as the same shall exist from time to time, shall be considered as counties for the purpose of complying with the provisions of the act until a subdivision of the Territory into counties is effected. No Territorial offset is required for any of the funds under the Act approved June 20, 1936.

Cooperative agricultural extension work in Alaska is for the same purpose as that conducted in the States under the Smith-Lever Act of 1914, making available to rural people information on agriculture and home economics, to improve rural life and agricultural conditions by means of instruction and practical demonstrations, modifications being made to suit local conditions in Alaska. In agriculture it includes gardening, some dairying, fur production, and marketing. In home economics there is a wide field for home improvement, due to somewhat pioneer conditions of many Alaskan homes. The 4-H Club work with boys and girls is stressed along the lines of both agriculture and home economics. The four field workers are obliged to travel great distances to reach and instruct the people and to give them practical demonstrations in improved farming and homemaking to stimulate individual initiative to improve agricultural and living conditions of farm families in the Territory.

These Federal funds are paid directly to a designated officer in the Territory and are disbursed in accordance with budgets and programs of work submitted by the director of extension and approved by the Secretary of Agriculture. Expenditures are subject to examination by representatives of the Department.

(e) PUERTO RICO

Appropriation Act, 1941.....	\$90,000
Budget Estimate, 1942.....	128,000
Increase.....	<u>38,000</u>

PROJECT STATEMENT

Project	1940	1941 (estimated)	1942 (estimated)	Increase
Payments to Puerto Rico for extension of section 21, Bankhead-Jones Act, to Puerto Rico....	\$65,000	\$90,000	\$128,000	+38,000 (1)

INCREASE

(1) The increase of \$38,000 in this item is recommended for 1942 to carry out the provisions of the Act of August 28, 1937 (7 U. S. C. 343f, 343g), extending the benefits of section 21 of the Bankhead-Jones Act to Puerto Rico. This amount would provide for 11 additional technical extension workers in

Puerto Rico in order to more adequately reach the large farm population in need of help, to be used as follows: (1) for 6 county agents at a total cost of \$3,600 each, including salary, travel, and miscellaneous expenses, to carry out a program with farmers to increase the production of food products as 50% of the food consumed by the population, including the defense forces, is imported from continental United States; (2) for 4 home demonstration agents at a total cost of \$3,000 each, including salary and miscellaneous expenses, to promote an intensive educational program aimed to correct the deficient diet of the small farmers and farm laborers' families; (3) for 1 assistant 4-H Club specialist at a total cost of \$4,400, including salary, travel, and miscellaneous expenses, to aid in youth problems.

Authorization: The Act approved August 28, 1937 (7 U. S. C. 343f, 343g), authorizes the extension of section 21 of the Bankhead-Jones Act of 1935 to Puerto Rico, with the provision that the amounts to be paid to Puerto Rico are authorized without diminution of the authorized payments to the States and the Territory of Hawaii under section 21 of the original act. The Act of August 28, 1937, also authorizes the payment of \$88,000 to Puerto Rico for the first fiscal year following enactment, with annual increments of \$40,000 thereafter until the total reaches \$408,000 in 1947, continuing thereafter in that amount. These grants are available to Puerto Rico only after it has met the required offset to funds provided under the permanent Smith-Lever Act. The appropriations authorized and the amounts appropriated to Puerto Rico under the Smith-Lever Act, as amended, and the Act of August 28, 1937, are as follows:

Permanent Specific App'n.
(Act of Mar. 4, 1931)

Act of Aug. 28,
1937

Year	<u>A u t h o r i z a t i o n s</u>		TOTAL
1939.....	\$95,069	\$88,000	\$183,069
1940.....	95,069	128,000	223,069
1941.....	95,069	168,000	263,069
1942.....	95,069	208,000	303,069
1943.....	95,069	248,000	343,069
1944.....	95,069	288,000	383,069
1945.....	95,069	328,000	423,069
1946.....	95,069	368,000	463,069
1947.....	95,069	408,000	503,069

	<u>A p p r o p r i a t i o n s</u>		
1939.....	95,069	45,000	140,069
1940.....	95,069	65,000	160,069
1941.....	95,069	90,000	185,069
1942.....	95,069	(Est.)128,000	223,069

The Problem: Puerto Rico has a dense rural population with a small acreage of arable land per capita (less than three fourths of an acre) available to produce subsistence for the population. Consequently, about 50 percent of the food for the population of Puerto Rico must now be shipped into the Island. There are 52,965 farms in Puerto Rico, 88 percent of which are of less than 20 acres each, of which 42,000 are not on improved roads. The country is very rugged and there is a lack of rural mail service and telephones. The large number of rural boys and girls not attending school should

be receiving training to make them good citizens, farmers, and homemakers. All these facts plainly indicate the necessity for extending the agricultural extension service in the Island, particularly to assist small farmers by personal contact and actual demonstration, in order to increase the productivity of the farms and gardens to the greatest practicable extent.

Significance: Section 21 of the Bankhead-Jones Act of 1935 provides for the distribution of funds to the States and Hawaii on the basis of farm population. If the act had been applicable to Puerto Rico when originally enacted, Puerto Rico would have received an allotment of approximately \$408,000 in the fiscal year 1940, instead of in the fiscal year 1947 as authorized under the act extending the benefits of section 21 of the Bankhead-Jones Act of 1935 to Puerto Rico. However, in extending the benefits of the latter Act to Puerto Rico allowance was made for the fact that there was a lack of trained personnel for employment there, and Congress fixed the allotments at amounts which could be effectively utilized. Since only \$90,000 of the \$168,000 authorized was actually appropriated for the fiscal year 1941, Puerto Rico has failed to receive the full benefits of the original plan for the betterment of agricultural conditions on the Island. Personnel has been trained by the University of Puerto Rico and is now available to fill such positions.

In case of emergency the Island of Puerto Rico might be separated from the mainland and its defense weakened by shortage of food, as the defense forces now import their foodstuff from continental United States. The Extension Service would promote a program to increase the production of food products to approach self-sustainment in case of such an emergency.

Because of the density of population of Puerto Rico, its lack of industries, etc., the income of the people is very low and the diet of the major portion of the population deficient. An intensive educational program, closely supervised, is greatly needed to promote home gardens, food conservation, goat raising for milk production, and rabbit and poultry raising for meat and eggs among small farmers and farm laborers' families.

There is a great need of promoting good citizenship among rural boys and girls of all classes. The teaching of democratic principles through 4-H Club groups and devotion to the Constitution and the Flag is urgently needed. In addition, the promotion of agricultural and home projects through an intensive 4-H Club program, together with the development of community activities and leadership, is of paramount importance for the future welfare of the Island and its relations with the 48 States and with South America.

(2) Salaries and Expenses

With reference to "Salaries and Expenses", composed of two items for the operation of the Washington office, the Extension Service is receiving for the fiscal year 1941 a total of \$790,000 (a reduction of \$59,966 under 1940), exclusive of forestry funds. The two appropriation items are: (1) "Administration and Coordination of Extension Work", \$550,000 (a reduction of \$36,416 under 1940) and (2) "Extension Information", \$240,000 (a reduction of \$23,550 under 1940).

For the fiscal year 1942 under "Salaries and Expenses" an increase of \$70,000 is requested for the item "Administration and Coordination of Extension Work", which, if approved, will be distributed over the various projects for the purpose of securing additional technical and clerical employees to aid in the problems of agricultural extension work made more acute because of defense preparations. A discussion under these two items follows.

(f) ADMINISTRATION AND COORDINATION OF EXTENSION WORK

Appropriation Act, 1941.....	\$550,000
Budget Estimate, 1942.....	620,000
Increase.....	<u>70,000</u>

PROJECT STATEMENT

Projects	1940	1941 (estimated)	1942 (estimated)	Increase
1. General administration and business service.....	\$120,129	\$125,000	\$125,000	- -
2. Review and analysis of State budgets, projects, and plans, and examination of State expenditures from Federal payments.....	68,106	70,000	70,000	- -
3. Planning and coordination of State and county extension work.....	215,336	195,000	241,000	+\$46,000 (1)
4. Development of technical subject matter for use by State extension forces.	172,320	160,000	184,000	+24,000 (2)
Unobligated balance.....	12,525	- -	- -	- -
Total.....	586,416	550,000	620,000	+70,000

INCREASES

The increase of \$70,000 in this item for 1942 consists of:

- (1) An increase of \$46,000 under the project "Planning and coordination of State and county extension work", to provide for six area supervisors covering about eight States each, for the correlation of all field administrative matters in such areas, to improve direction, effect necessary integration of programs, and to maintain closer contacts with the State directors to bring about better organization and administration of the cooperative extension system. This amount provides for six senior scientists at \$5,600, together with necessary travel of \$7,200; three stenographers at \$1,620, and miscellaneous expenses of \$340.

Objective: To meet a demand for additional assistance in organizing, planning, and coordinating State and county extension work occasioned by the greatly expanded farm program and made more acute by the National Defense program.

The Problem: The value of the work in all three major fields of activity -- county agent, home demonstration, and 4-H Club work -- looms very large, but the work could be made much more effective if the Federal Extension Service had a force available to bring about a higher degree of integration and coordination, particularly in relation to the advancement of educational programs concerned with (1) farm and home operations, (2) national programs for agriculture, (3) more intensive development for long-time agricultural or land-use planning, and (4) agricultural phases of defense. There is a need to increase contacts with State directors of extension work, to aid them in maintaining effective organization and administration of the cooperative extension system, and to develop the much desired unity of purpose of the various State extension services and build the best working relationships with the Department.

Significance: Since the fiscal year 1935 Federal funds available for payment to the States and Territories have more than doubled. State and local funds have also materially increased and the calls for educational assistance have multiplied. However, there has not been a corresponding increase in funds for extension work in the Washington Office. Furthermore, the work of all extension agents has greatly expanded in scope and significance for farm people. Extension work, which during its first twenty years of development concerned itself largely with improving farm and home practices and with extending technological subject matter, now operates in two other fields of activity of the utmost significance to farm people in helping them make the necessary adjustments in meeting pressing economic and social situations and in the improvement of rural welfare generally. These fields of activity are: (1) the national programs for agriculture, known as action programs; and (2) long-time agricultural planning in communities, counties, and States, which is rapidly coming to be over-all agricultural planning. While funds were provided to the States under the Bankhead-Jones Act of 1935 to assist with this work, no additional funds were provided to the Federal Extension Service for the administration of that Act. The extension agents, and particularly the county agricultural agents, continue to play a major part in carrying the public programs to the people locally, assisting them to understand the basic needs which these programs are designed to meet, increasing and maintaining wide participation in these programs, and assisting farm people to make the wisest use of the various phases of programs as adapted to their own individual situations. With any increase in the future of the impact of European situations on our agricultural economy, it is evident that the extension agents must play an even greater role in helping agencies of the Federal Government to reach farm people quickly and effectively and to assist them, as well as to insure coordinated effort in making necessary adjustments to meet the national needs. This requires effectively trained Federal extension forces to make possible rapid contact with State extension supervisory and county extension forces in providing the necessary information, assistance in organizing, planning, and carrying on of widespread educational effort.

With land-use planning now proceeding in the counties and with the prospect of this important activity rapidly being extended in some form to all counties, State and county extension agents, as well as representatives of the national agencies, need much more assistance than they are getting now from the Federal Extension Service in bringing about the best understanding of the procedures involved in furthering a widespread appreciation of the problems of land-use adjustments, in organizing local and State groups for land-use planning, and in finding ways and means of coordinating the efforts of the various agencies or setting up new local and State agencies to give assurance that important recommendations developed by the planning groups result in action and in reaching the goals sought. Here the Washington office has a responsibility for a service which should not be neglected because of an insufficient field and supervisory force.

Plan of Work: In the States there are more than 9,000 professionally trained people in extension teaching, who with the assistance of more than 580,000 voluntary leaders, are giving training to 1,286,000 rural boys and girls through 4-H Club work and are definitely influencing the farm and home practices of 4,600,000 farm families and 800,000 rural non-farm families. With all, extension work which helps farm people with their individual problems of farm and home operation has grown in volume because of the demand of farmers and homemakers.

Consequently, State and county extension agents are in greater need than ever for help in organizing and carrying forward educational procedures. The six area supervisors will work in approximately eight States each, and be responsible for the correlation of all field administrative matters in such areas, and for the unification and direction of all extension programs. Involved are problems affecting the organization and direction of State supervision of nearly 7,400 county extension agents and their supervisors; adjustments and changes in State and county work to advance the national programs for agriculture, and for preparedness and defense; coordination of the work of the county, State and Federal extension workers to advance needed work of some of the larger agricultural and homemaking problems, including nutrition and health work with approximately two million families with less than \$500 annual income, the national program for the use of surplus cotton, stimulation and direction of more work in educating people for citizenship in democracy, the more rapid development of land use planning in connection with preparedness, etc.

(2) A total increase of \$24,000 for "Development of technical subject matter for use by State extension forces", as follows:

(a) An increase of \$12,000 to provide an agricultural engineer and a rural housing specialist to develop technical subject matter in their respective fields for use by State extension forces, in order that farmers and rural homemakers may increase farm income by having the best information available to apply to their farm and home operations. This amount provides for two senior scientists at \$4,600, together with necessary travel of \$1,600; a part-time stenographer at \$810, and miscellaneous expenses of \$190.

Objective: To develop technical subject matter in agricultural engineering and in rural housing; devise effective methods for dissemination of such material to rural people; and provide leadership and uniform approach in solving agricultural extension problems involved in these specialized fields.

The Problem: Extension workers in the counties are supported by more than 1,200 State specialists in various lines, approximately one-third of whom are without Federal leadership, to aid in solving agricultural and home-economics problems in eight important categories. If the Federal Extension Service had a staff for adequate coverage of research bureaus and the new action agencies, the work of the State specialists would be more effective in carrying out the educational responsibilities and opportunities for cooperative extension work. Agricultural engineering and rural housing are two of the eight special fields which need particular attention at this time, as the State Extension Services have been continually handicapped through lack of special assistance from the Federal Extension Service in developing material and guiding the State specialists in the explanation of the benefits to be derived from national agricultural programs, such as rural electrification, conservation, housing, irrigation, etc.

Significance: The Cooperative Agricultural Extension Service is the agency that should render educational aid to farm people. In order to adequately accomplish this purpose, liaison specialists are needed in the Federal Extension Service to represent a wide range of research in agricultural engineering and rural housing and the action programs in conservation and rural electrification. The county agricultural extension agents depend on State specialists for information and guidance, and these specialists in turn look to the Federal Extension Service for advice from a national viewpoint.

With the great mechanization of agriculture, there is now a wide range of engineering projects carried on by 103 agricultural engineers and 18 cotton-ginning specialists in the States whose activities are vitally related to important programs, such as conservation, rural electrification, housing, and irrigation, and other subject matter, including power and machinery, safety, buildings, rural industries, etc. An agricultural engineer in the Federal Extension Service to act as liaison between the Extension Service and the Bureau of Agricultural Chemistry and Engineering and the action agencies for phases of agricultural engineering could render practically unlimited service to the State specialists in this field.

One-third of the Nation is poorly housed, and the result of the rural housing survey shows a tremendous need for better equipment and better housing facilities in rural areas. Extension Service assistance is greatly needed, since farm income is largely responsible for the present inadequate housing situation. Areas where incomes are low are those in which housing is of poorest quality as judged by such figures as value, state of repair, and presence or absence of facilities. By pairing the statistics of public-health departments and the statistics on housing, it is clearly shown that certain health conditions follow poor housing, and poor housing facilities. The increase in number of farm families during the years since 1930 has been about one million, and rural housing has not kept pace with this increase. Seventy percent of farm homes still use kerosene lamps. Seventy-five percent are still without hot and cold running water. Though there has been a great increase in electricity in more recent years, still 70 percent of farm homes are without its use for all purposes. There are more than 200 specialists in the States in lines relating more or less directly to housing problems. A rural housing specialist in the Federal Extension Service to act as liaison between the Extension Service and the

Bureau of Home Economics and the action agencies, such as the Rural Electrification Administration and National Defense Commission, could render practically unlimited service to the State specialists in this field.

Plan of Work: The agricultural engineer and the rural housing specialist will serve as national leaders in their respective fields in agriculture and home economics. They will be responsible for providing essential technical material as it becomes available for extension use; for organizing such material for most effective use and will carry these recommendations to State extension leaders and specialists and help such State officials incorporate their recommendations into State extension programs. They likewise will study in their respective fields the way agricultural extension work is organized and carried on in each State, together with the results obtained, and carry the best practices found in each State to all States. They will also serve as liaison for the appropriate Bureaus and agencies in the Department and all other extension workers.

(b) An increase of \$12,000 to provide a cotton marketing specialist and a dairy and poultry specialist to develop technical subject matter in agricultural economics and marketing for use by State extension forces, in order that farmers and rural homemakers may increase farm income by having the best information available to apply to their farm and home operations. This amount provides for two senior scientists at \$4,600, together with total necessary travel of \$1,600; a part-time stenographer at \$810, and miscellaneous expenses of \$190.

Objective: To make available to State and county extension workers basic facts and information required in the development of sound and effective educational programs in the fields of cotton, dairy, and poultry marketing; to confer and collaborate with the State and county extension services, farm leaders, and others in developing and conducting marketing programs of regional and national interest.

The Problem: State extension specialists and county agents in cotton producing States at the present time are without Federal leadership in cotton educational marketing work, and there is also a lack of Federal leadership on a national basis in dairy and poultry marketing. An extensive coordinated educational program is needed in these specialized fields in connection with improved marketing methods and facilities as developed by governmental and other agencies. These specialists will assist State and county extension workers in developing educational programs in cotton, dairy and poultry marketing and in coordinating these programs on a State and regional basis. In addition, a broad and comprehensive educational program among farmers is needed to better understand and use the services and programs of the several Federal and State bureaus and agencies interested in more efficient marketing and distribution of these products.

Significance: Because of the increasing emphasis placed by farm people on marketing and distribution problems, there are now about 240 specialists in marketing and economics in the States whose activities deal with the educational phases of these problems. In addition, there are many State Extension Specialists in other fields engaged in some phases of marketing work in connec-

tion with their specialized extension programs. These specialists supply county agricultural agents with information and guidance in conducting marketing educational work with farmers. State specialists look to the Federal Extension Service for assistance and advice on marketing problems relating to cotton, dairy, and poultry products from the national viewpoint. Cotton, dairy and poultry products are important cash crops to more than half of the farmers in the United States, consequently every effort should be made to obtain efficient marketing and handling of these products to increase this income. In addition, present and prospective serious surplus conditions in cotton, and the importance of dairy and poultry production in adequate diets, requires the development of wider domestic markets and outlets and consumption.

Plan of Work: Two specialists in marketing, one for cotton and one for dairy and poultry will collect, analyze and disseminate basic facts and information required in the development of sound and effective educational programs in these special fields. They will also develop and conduct marketing programs of regional and national interest, conferring and collaborating with the State and county extension services, farm leaders and others, in developing the work.

WORK UNDER THIS APPROPRIATION

General. This item provides funds for the Extension Service of the United States Department of Agriculture to administer the various Congressional Acts authorizing cooperative agricultural extension work conducted in continental United States, the Territories of Alaska and Hawaii, and Puerto Rico; to supervise, coordinate, and study work conducted by extension services in the field under projects and plans approved by the Director of Extension Work for the purpose of developing and carrying into effect extension programs best fitted to the needs of rural people; and to provide State extension services with the results of the research work of the various bureaus of the Department and assist in correlating such information with State extension programs in order that agricultural and home economic practices may be improved and net farm incomes increased.

Project 1. General Administration and Business Service:

Objective: To provide for the salaries and expenses of the Director of Extension Work and his immediate staff, together with facilities for business administration. The Division of Business Administration, supervises personnel, fiscal, budgetary, purchase, and similar activities relating to the efficient management of the Extension Service.

Project 2. Review and Analysis of State Budgets, Projects, and Plans, and Examination of State Expenditures from Federal Payments:

Objective: To ascertain whether cooperative extension funds paid over to States and Territories are allocated and expended in accordance with Federal laws and agreements between the United States Department of Agriculture and State agricultural extension services; likewise to direct, recommend, and suggest revisions of projects to bring about a coordinated national program.

The Problem: Under the Smith-Lever Act and legislation amendatory or supplementary thereto, the Secretary of Agriculture is responsible for the approval of projects and plans of work for the expenditure of funds made available under these acts for allocation to the various States and Territories. These projects and plans of work must be reviewed by a competent staff representing the Director of Extension Work and followed up throughout the year for the purpose of determining whether or not the projects are being conducted as agreed upon. Finally, after the close of a fiscal year, this staff must examine the accounts of the various State and Territorial extension services to determine whether all such expenditures have been in the interest of extension work and in accordance with approved projects and plans. In this work there is the added problem of studying projects and plans from a national point of view for the purpose of recommending revisions to bring about a high degree of national coordination.

Significance: The primary purpose of extension work is to improve farm and home conditions. Accordingly, it is essential that the projects and plans of work be so formulated and carried out as to cover, so far as practicable, the entire field of agriculture and home economics with all its economic and social significance.

Plan of Work: Working under the Director of Extension Work are three principal agriculturists, who, with the assistance of that part of the Division of Business Administration which is charged with the responsibility of maintaining records on funds available under the Smith-Lever Act and legislation amendatory thereto, review all State projects, plans, and budgets submitted by the States and Territories, and on the basis of this review make recommendations to the Director for any required revisions. The projects, plans, and annual reports of the State directors, supervisors, and specialists are carefully reviewed in relation to accomplishments, and comprehensive analyses of extension appropriations are made, not only from the standpoint of the Federal sources, but also from the point of view of State and county appropriations. On the basis of these analyses, recommendations are made as to closing out completed projects, for shifting funds from one line of work to another, and, in general, for more efficient use of such funds. Definite travel schedules are prepared so that examiners may visit the States or Territories as often as may be required for the purpose of examining not only the expenditure of funds but the accomplishments under the various approved projects and plans. The policy is to rotate those who review accounts so as not to have the same person review the accounts in the same State more than two years out of three. The Federal Extension Service makes the only audit of the expenditure of Federal extension money and offset thereto. The importance of this project is evident.

Project 3. Planning and Coordination of State and County Extension Work:

Objective: To supervise, coordinate, and study work conducted by State extension services under projects and plans approved by the Director of Extension Work for the purpose of developing and carrying into effect extension programs best fitted to the needs of rural people.

The Problem: Since the fiscal year 1935, Federal funds available for allotment to the States and Territories have more than doubled. State and local funds have also materially increased. The personnel and volume of work in the States have expanded correspondingly. However, there has not been a corresponding increase in funds for the Federal Extension Service for organization, planning, coordination, and direction of extension work. Furthermore, the work of the county extension agents has expanded with the development of the national public programs for agriculture and the introduction of land-use planning. In addition to carrying on extension work for the improvement of farm and homemaking practices as before, the work now includes giving assistance in carrying these public programs to the people locally, interpreting these programs and encouraging wide participation in them, and the determination of farm and community readjustments based on land-use planning. It has been necessary to integrate the national action programs and State extension programs and to give particular attention to Farm Security and allied problems. Since nearly \$33,000,000 is expended annually for cooperative extension work in the States and Territories, it is good administration to give adequate assistance to State extension services in the organization, planning, and supervision of cooperative agricultural extension work, as well as to coordinate extension work with the Department's national program for agriculture; also to study and put into practice the most effective means of conducting extension work and to conduct training courses for professional improvement.

Significance: The present force of county extension agents and specialists has made possible as never before assistance to rural people with the myriad problems of farm and home operations. The county extension office has come to be a center of agricultural affairs. Moreover, the scope and contacts with farm people and the importance of the work are constantly enlarging. The county agents play a most significant part in the advancement of all the national programs for agriculture and are giving increasingly greater attention to the development of land-use planning, which is of economic importance in helping to bring about adjustments in farming and rural living.

Plan of Work: A technically trained leader directs the work of two assistants, with special training and experience in the State and Federal extension work as related to the activities of county agricultural and home-demonstration agents, and boys' and girls' 4-H Club work. One assistant is responsible for the organization, planning, and supervision of cooperative extension work in the various States and Territories, as well as the coordination of extension work with the Department's national programs for agriculture; the other assistant is responsible for the direction and supervision of studies of effective means for conducting extension work and the development of personnel training courses. The leader of the project, with the aid of his two assistants, each of whom is provided with a technical staff, cooperates with the various State directors of extension work in developing and carrying out the work as outlined in projects and plans which have been approved by the Department's Director of Extension Work and in making studies of effective means for extension teaching and professional in-service training.

Project 4. Development of Technical Subject Matter for Use by State Extension Forces.

Objective: To provide State extension services with the results of the research work of the various bureaus of the Department and assist in correlating such information with State extension programs in order that agricultural and home-economic practices may be improved and net farm incomes increased.

The Problem: The development of technical subject matter in agriculture and home economics for use by State extension forces requires a staff of Federal extension specialists especially qualified to interpret and synthesize the researches of the bureaus of the Department and other Government agencies and State experiment stations and adapt them to State and county situations in practical farm and rural living procedures. To be effective the subject matter must not only be brought together and appropriately correlated with sound economic practices, but suitable coordinated educational methods must be devised and spread from State to State and into county extension work. The staff of agricultural and home-economics extension specialists serve as liaison between the various bureaus and Federal leaders, who make available to the staff of 1,200 subject-matter specialists in the State extension forces the results of the research work of the Department and aid in the understanding of subject-matter phases of action programs.

Significance: The specialists under this project bring to State extension specialists the most progressive proven technical agricultural and home-economics developments of the Department and other reliable sources, adapted to farm and farm living situations and trends; popularize the conservation of human and natural resources, and aid the State extension services in helping farmers to utilize fully the services which action agencies afford. They serve also as liaison between the Department and the technical specialists of State extension services. The economic position of farmers is improved through helping them develop an understanding of the economic problems involved and to make adjustments in farm organization and operation, marketing, and financing; as well as ways and methods in which they may cooperate to the advantage of the industry and themselves. The work is essential in aiding farmers to improve their net income and standards of living and contributes to stabilizing the agricultural industry.

Plan of Work: A technical staff specializing in the various phases of agriculture, home economics, and agricultural economics acts as liaison between the various bureaus and agencies of the Department, and the Extension Service. They are responsible for providing the essential technical material which may be ready for extension resulting from the Department's research findings and for so organizing the material that it may be used effectively in the programs in the field. The extension subject-matter specialists have offices with and are responsible to the subject-matter bureau of the Department whose subject matter they carry to the States. In their contacts with the extension field and for administrative direction, they are responsible to the Extension Service. The staff of economists give their full time to the extension of agriculture and home economics along the lines of marketing, farm management, farm credit, and like matters. These agricul-

tural extension specialists and economists collaborate with State specialists in the development of sound programs to improve agricultural and home-economic practices and increase farm incomes. They likewise study the way agricultural extension work is organized and carried on in each State, together with the results obtained, and carry the best practices found in each State to all the States.

SUPPLEMENTAL FUNDS

Direct Allotments

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Cooperative Farm Forestry: Cooperation with States for extension activities in developing farm forestry:</u>			
Under Clarke-McNary Act, Section 5.	\$74,216	\$65,200	\$65,200
Under Norris-Doxey Act.....	15,967	41,800	41,800
Total.....	90,183	107,000	107,000
<u>Salaries and Expenses, Agricultural Adjustment Administration: For technical and clerical assistance on agricultural adjustment programs..</u>	17,950	10,000	10,000
<u>Conservation and Use of Agricultural Land Resources, For special assistance on projects incident to the agricultural conservation program.....</u>	17,740	26,690	26,690
<u>Exportation and Domestic Consumption of Agricultural Commodities, For assistance in connection with requirements of the Surplus Marketing Administration.....</u>	- -	1,620	1,620
<u>Working Fund, Agriculture, (Reclamation Fund, Special Fund): For special assistance on reclamation projects of the Department of the Interior.....</u>	- -	12,500	- -
Total, Supplemental funds (direct allotments).....	125,873	157,810	145,310

(g) EXTENSION INFORMATION

Appropriation Act, 1941..... \$240,000
 Budget estimate, 1942..... 240,000

PROJECT STATEMENT

Project	1940	1941 (estimated)	1942 (estimated)
1. Preparation and distribution of visual material and extension literature to Department and State extension forces.....	\$99,203	\$85,000	\$85,000
2. Preparation and distribution of motion pictures on agriculture and related subjects.....	78,186	74,500	74,500
3. Preparation and exhibition of agricultural exhibits.....	84,503	80,500	80,500
Unobligated balance.....	1,658	-	-
Total.....	263,550	240,000	240,000

WORK UNDER THIS APPROPRIATION

General. The Agricultural Appropriation Act of 1941 contained a new appropriation combining into one item the activities hitherto conducted under separate appropriation items for "Motion Pictures" and "Agricultural Exhibits at Fairs", together with that part of the Farmers' Cooperative Demonstration Work item formerly utilized for the preparation and distribution of visual material and extension literature. The work under this appropriation is concerned with coordinating these activities to develop and carry out a broad unified program of visual education by means of motion pictures, exhibits, film strips, and other educational and teaching media. By these methods agricultural information, interpreting the results of Department research and carrying out the Department's program for the advancement of agriculture, is disseminated and the educational work carried on by the Federal Extension Service in cooperation with land-grant colleges in the States is made more effective.

Project 1. Preparation and Distribution of Visual Material and Extension Literature to Department and State Extension Forces:

Objective: To prepare and distribute illustrated material, including slides and films, photographs, and charts, as well as circulars, bulletins, press, and other written material, to illuminate and clarify scientific data relating to agriculture and home economics for practical use by extension workers; to advise and teach extension workers the preparation and use of film strips, photography, circular letters, radio talks, news items, etc.

The Problem and its Significance: Film strips, charts, posters, publications, and other visual aids and informational material are essential to insure the effectiveness of cooperative agricultural extension work. The Department's greatly expanded coordinated programs with the States necessitate information relations, supervision, and help to the extension workers in the States in the preparation and use of visual and other informational material.

Visual aids, extension literature, and direct assistance to State extension editors, increase the effectiveness and educational effort of 9,000 county and State cooperative extension workers. Careful studies of extension work (available in published form) show that news stories, visual aids, and other information avenues of education are some of the most effective and economical means for encouraging farm people to adopt more improved practices. Therefore, these aids should be widely and effectively used.

Plan and Progress of Work: Under this project the Extension Service maintains such activities as its photographic library; editorial unit; preparation of radio programs; preparation of special educational material, lantern slides, and film strips; and similar informational functions. Service in connection with information and illustrative material is rendered to the approximately 9,000 extension field workers. All annual reports and similar data are prepared under this project. This work is conducted in cooperation with the bureaus of this Department and with other Federal departments and agencies and State extension services which furnish authoritative subject matter. Requests for both bulletins and film strips from State extension offices and other educational agencies were much greater in 1940 than in previous years; approximately 30,000 educational film strips, 4 million Department of Agriculture bulletins and discussion pamphlets, and 83,000 copies of extension circulars and other mimeographed material being distributed during the year. The Extension Service Review, monthly publication for extension field workers, informed them of methods being successfully used by fellow workers in the various States and of the current farm program. These activities are continued in fiscal year 1941.

Project 2. Preparation and Distribution of Motion Pictures on Agriculture and Related Subjects:

Objective: To provide agricultural information by means of motion pictures, based on (1) the results of Department research, and (2) Department action programs.

The Problem and its Significance: New educational motion picture films, based on the results of the research activities of the Department as well as the action agencies are essential to strengthen the efforts of extension workers assisting farmers and others to apply the results of research to the solution of local problems and to comprehend the significance and value to them of the national programs for agriculture. The Extension Service is making an effort to plan and produce motion pictures to more effectively portray the fundamental objectives of the Department and to advise extension workers on best use of available films.

Congress has appropriated about eighteen million dollars to enable the Department of Agriculture, through its 9,000 cooperative extension workers, to introduce better farm and home practices among 30,000,000 farm people. To secure the best teaching results and the greatest accomplishment for the money appropriated these workers must be furnished assistance through recognized teaching aids. Scientists claim that 83 percent of impressions are received through the eye; hence motion pictures are one of the most effective means of disseminating the results of research so valuable to farm people. They attract them to meetings where agricultural problems are discussed, and in one State a study was made showing motion pictures to be the means of increasing the average attendance at these meetings over 800 percent. Motion picture service, therefore, is considered an important part of extension teaching.

Plan and Progress of Work: Under this project the Extension Service, in cooperation with the various bureaus of the Department, State extension services, and other agencies, prepares and distributes motion pictures to the approximately 9,000 extension workers and to educational agencies. The subjects on which motion pictures are to be prepared are selected in two ways - (1) by recommendation of State extension services; and (2) by request of bureaus of the Department of Agriculture for motion pictures on subject matter with which they are concerned. Trained personnel is provided for making the necessary pictures and for recording sound, development, processing, and other steps essential to the preparation of films. Distribution is conducted from Washington with 21 sub-distribution centers in 20 States. Records are maintained and films are booked, shipped, and inspected. Notifications of release of films are prepared and catalogs and other necessary information furnished. Facilities for service being inadequate to meet all demands the preference in the use of films on farming subjects is given to extension field workers, agricultural schools, and the like, and films of more general character are sent to schools and other organizations on request. An annual contract is made with a commercial laboratory to make prints from Department negatives at a definite price and applicants are encouraged to buy copies whenever extended use is contemplated. More than 7,900,000 people saw Department of Agriculture motion pictures at 59,271 showings during 1940. Films from the extension motion-picture library are loaned without charge for educational use, and educational agencies are permitted to purchase copies of these films at cost. Nearly 1,500 such copies were purchased during 1940. Other agencies now own as many prints of Department films as are circulated by the Department itself.

Project 3. Preparation and Exhibition of Agricultural Exhibits:

Objective: To provide agricultural information by means of exhibits, based on (1) the results of Department research, and (2) Department action programs.

The Problem and its Significance: Exhibits have been highly successful in interesting farm people in important agricultural problems and instructing them in methods of solving such problems. They have taught valuable lessons to farm people whom extension agents have been unable to reach through other types of educational media. Each year Department educational exhibits are presented at fairs in every agricultural area which have an attendance of approximately 17 million persons, many of whom are stimulated by the exhibits to seek additional information and advice by requesting bulletins and consulting extension workers. There is practically no information, in published form or otherwise, available on the design and use of educational exhibits; and the greatest experience in this field as related to agricultural education is now available in the Department.

During the past 25 years the Department of Agriculture has presented information on better ways of farming and on a more abundant home life to farmers and the general public at more than 1,500 fairs, expositions, and other exhibition occasions, having a total attendance estimated to be about 200 million people. In early days, Government agencies expended much exhibit energy in telling the public about their functions, but as early as 1921 the Department of Agriculture commenced the presentation, instead, of useful information about new and better ways of growing crops, handling livestock, and improving the home. Since then the standard applied in considering subjects for exhibits has been the usefulness of the facts to farmers and the general public.

Plan and Progress of Work: Under this project the Extension Service, in cooperation with the various bureaus of the Department, State extension services, and other agencies, prepares educational agricultural exhibits based on information developed in or sponsored by the Department, and manages the display of exhibits at fairs, expositions, meetings, conventions, etc. This includes the analysis of subject matter; preparation of exhibit designs and construction plans; construction and maintenance of exhibits; and negotiation of cooperative agreements with fairs, expositions, and other exhibition occasions. The handling and shipping of exhibits and the management of display at cooperating exhibition occasions are arranged and supervised.

Educational exhibits prepared by the Federal Extension Service were displayed at 58 fairs and expositions in 1940, with a total attendance estimated at more than 10 million persons. Twenty-one new exhibits were built during the year, 17 of which were planned to further conservation practices and the National farm program.

(h) SEVENTH WORLD'S POULTRY CONGRESS AND EXPOSITION

A net amount of \$26,275 was available to the Extension Service (by transfer from the State Department) for participation in the Seventh World's Poultry Congress and Exposition held in 1939 in Cleveland, Ohio. Of this amount, \$13,359 was obligated during the fiscal years 1938 and 1939, and \$12,176 was obligated during the fiscal year 1940.

(i) GOLDEN GATE INTERNATIONAL EXPOSITION

This schedule covers an allotment of \$597 to the Extension Service from the allocation made to this Department from the appropriation "Golden Gate International Exposition (Transfer to Agriculture)" for the purpose of defraying expenses in connection with the furnishing of materials for use in the exhibit at the Golden Gate International Exposition to be held in San Francisco, California, during 1940.

(j) WORKING FUND, AGRICULTURE (EXPENSES OF THE SIXTEENTH CENSUS)

(Advance from "Expenses of the Sixteenth Census")

By agreement with the Bureau of the Census, Department of Commerce, necessary personnel and miscellaneous expenses were provided for the production and delivery of motion pictures to the Bureau of the Census, Department of Commerce. The sum of \$5,000 covered by this schedule, was made available for this purpose.

(k) COOPERATIVE AGRICULTURAL EXTENSION WORK

(Permanent Annual Smith-Lever Appropriation)

Permanent Appropriation, 1941 \$4,701,165
 Budget estimate, 1942 4,701,165

PROJECT STATEMENT

Project	1940	1941 (estimated)	1942 (estimated)
Payments to States, Hawaii, and Puerto Rico for cooperative agricultural extension work (Smith-Lever Act).....	\$4,701,165	\$4,701,165	\$4,701,165

WORK UNDER THIS APPROPRIATION

This is the permanent specific appropriation for cooperative agricultural extension work provided for under the Smith-Lever Act, approved May 8, 1914 (7 U.S. C. 341-348), as amended by the extension of this Act to the Territory of Hawaii by the Act of May 16, 1928 (7 U. S. C. 386-386b) and to Puerto Rico by the Act of March 4, 1931 (7 U. S. C. 386d-386f). Under the provisions of these acts, \$10,000 is appropriated annually to each State, Hawaii, and Puerto Rico without requirement of State or Territorial offset, and the remainder of the appropriation is distributed on the basis of rural population.

This is the basic act under which cooperative extension work, discussed in detail under the heading "Extension Service", is conducted by the Department and the State colleges of Agriculture, making available to rural people information on agriculture and home economics.

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→ + 31,9000 ~~2,420~~ ~~1,200~~

2,420,000

~~3/02
4,88,433
- 1,205
3,67,228~~

BUREAU OF AGRICULTURAL ECONOMICSSALARIES AND EXPENSES

Appropriation Act 1941:

"General administrative expenses"	\$88,900 (a)
"Economic investigations"	<u>775,000 (a)</u>
Total, Salaries and Expenses, 1941	863,900

Transferred to: "Salaries and Expenses, Public Buildings
and Grounds in the District of Columbia, Public Build-
ings Administration"

-6,795

Allotments in 1941, transferred in 1942 estimates with corres-
ponding reductions in:

Conservation and use of agricultural land resources, Department of Agriculture	+500,000
Conservation and use of agricultural land resources, (adjustment in freight rates for farm products)	+100,000
Administration of Federal Crop Insurance Act, Depart- ment of Agriculture	+76,800
Land utilization and retirement of submarginal land, Department of Agriculture	+737,000
Parity payments, Department of Agriculture	+125,000
Exportation and domestic consumption of agricultural commodities, Department of Agriculture	+150,000
Administration of Sugar Act of 1937, Department of Agriculture	+50,000
Liquidation and management of resettlement projects, Department of Agriculture	+11,250
Administrative expenses, Farm Tenancy, Department of Agriculture	+50,000
Salaries and expenses, Rural Electrification, Depart- ment of Agriculture	+50,000
Emergency relief, Agriculture, Agricultural Economics, Administrative expenses	+147,845
Salaries and expenses, Farm Credit Administration, Department of Agriculture	+100,000
Forest roads and trails	+44,500
Salaries and expenses, Forest Service, national forest protection and management	+18,500
Salaries and expenses, Forest Service, forest survey	+3,000
Salaries and expenses, Forest Service, private forestry cooperation	+2,000
Forest-fire cooperation	+10,000
Acquisition of lands for the protection of watersheds of navigable streams	+12,000
Salaries and expenses, Soil Conservation Service (soil and moisture conservation and land-use operations, demonstrations, and information)	<u>+75,000</u>
Total available, 1941	3,120,000
Budget estimate, 1942	<u>3,120,000</u>

(a) The 1942 estimates provide for consolidation of these
two items. (See "Changes in Language".)

PROJECT STATEMENT

Project	1940	1941 (estimated)	1942 (estimated)
Economic investigations, program formulation, and state and local land-use planning	\$3,025,841	\$3,230,000	\$3,230,000
Unobligated balance	2,910	- -	- -
Total	3,028,751(a)	3,230,000(b)	3,230,000(b)

- (a) Includes, in addition to the appropriation of \$928,000, net transfers amounting to \$2,100,751.
- (b) Includes, in addition to the transfers shown above, allotments amounting to \$110,000 as follows: "Administrative expenses, Commodity Credit Corporation," \$60,000; "Salaries and expenses, Federal Farm Mortgage Corporation," \$50,000.

The Budget Estimates recommend the transfer to this appropriation of funds amounting to \$2,262,895, at present allotted from the program funds applicable, and the transfer of \$6,795 from this appropriation to "Salaries and expenses, Public Buildings and Grounds". The transfers to this appropriation are used for aid in formulating the authorized programs of the Department.

Under a general memorandum of understanding between the various agencies of the Department, and in line with the Departmental reorganization in 1938, the Bureau cooperates with the operating agencies of the Department in developing unified general programs that encompass land use, conservation, production adjustment, farm tenancy, rural rehabilitation, marketing service and regulatory work, and other authorized activities.

In order to simplify the present very complex administrative, budgetary and accounting procedure necessary in carrying on the work under a large number of appropriations, it is highly desirable to consolidate the funds used for the economic research, program formulation, and integrating work of this Bureau under one appropriation. The transfers represent no increase in working funds, but merely consolidate under one appropriation funds now used from the separate appropriations indicated in the Budget.

CHANGES IN LANGUAGE

In view of the present status of the Bureau of Agricultural Economics as a staff agency of the Department, the estimates provide for placing this appropriation in the first part of the bill along with other staff agencies.

[SALARIES AND EXPENSES]

Salaries and Expenses, Bureau of Agricultural Economics -

[For the employment of such persons and means in the city of Washington and elsewhere as may be necessary in conducting investigations, experiments, and demonstrations, either independently or in cooperation with public or private agencies, organizations, or individuals, as follows:]

[General administrative expenses: For necessary expenses for general administrative purposes, including personal services in the District of Columbia, \$88,900]

[Economic investigations] Salaries and expenses: For acquiring and diffusing useful information among the people of the United States, for conducting investigations, experiments, and demonstrations, and for aiding in formulating programs for authorized activities of the Department of Agriculture, relative to agricultural production, distribution, land utilization, and conservation in their broadest aspects, including farm management and practice, utilization of farm and food products, purchasing of farm supplies, farm population and rural life, farm labor, farm finance, insurance and taxation, adjustments in production to probable demand for the different farm and food products; land ownership and values, costs, prices and income in their relation to agriculture, including causes for their variations and trends, [\$775,000] including the employment of persons and means in the District of Columbia and elsewhere, either independently or in cooperation with public or private agencies, organizations or individuals, \$3,120,000 of which amount not to exceed \$1,765,812 may be expended for personal services in the District of Columbia: Provided, That the Secretary may transfer to this appropriation from the funds available for authorized activities of the Department of Agriculture, such sums as may be necessary for aiding in formulating programs for such authorized activities, including expenditures for employment of persons and means in the District of Columbia and elsewhere.

It is proposed to strike out the enabling clause and the item covering "General Administrative Expenses" and to combine this authority with the language under the item "Economic Investigations" in a single item entitled "Salaries and Expenses". This makes the final paragraph covering "Total Salaries and Expenses" unnecessary, and with the elimination of this paragraph the limitation upon personal services in the District of Columbia is embodied in the one appropriation item.

This revision does not broaden the language but merely restates it to provide the present authority under one appropriation item.

WORK UNDER THIS APPROPRIATION

Since 1933 Congress has enacted into law the most comprehensive farm program in the Nation's history. In consequence, responsibilities

new in kind and degree, and of unusual complexity, have been assigned to the Department of Agriculture.

In considerable part because of this legislative program, farm income today is higher, farm mortgage debt is lower, disparity between agriculture and industry is less, and the first vigorous strides have been taken in behalf of soil conservation, of a sound national policy of land use, and of the rehabilitation of farm families in distress.

Unfortunately, new problems must now be piled on top of the older and more familiar ones. Once again agriculture faces an emergency, the dimensions of which can only be guessed. War abroad, and a vast national defense program at home, have drastically changed the outlook for American farmers. They have now to consider what this war will do, this year and thereafter, to the market for farm products, to farm prices, to land values, to the prices of things farmers buy, and to the effective operation of the comprehensive farm program which has been developing since 1933. The war in Europe, its outcome and its aftermath, dominate the outlook for nearly every major product of American agriculture.

Shifts in demand and changes in production requirements for our agriculture growing out of this emergency present a grave challenge to agriculture and to every agency charged with the responsibility of meeting its problems. No one wishes to repeat the mistakes which grew out of the last war. The measures enacted for the aid of agriculture in the past eight years are now the first line of defense in meeting the new emergency as well as the mechanism through which farmers can deal with their continuing, long-term problems. The task before the Department of Agriculture is now to plan and administer its authorized activities so that the mechanism of the farm program may serve the new emergency and the continuing needs of agriculture equally well.

New Functions for the Bureau:

Under the reorganization plan of 1938 the Bureau of Agricultural Economics has been assigned a central place in the Department. The Bureau has long been an economic research agency serving agriculture, and its findings have provided the basis for much national legislation. It is still an economic research agency for agriculture, but in addition, it is now the general program development agency of the Department of Agriculture. Its functions include: (a) sponsorship of cooperative land-use planning, conducted jointly in the counties and States by farmers, trained technicians, and representatives of appropriate state and Department agencies; (b) the conduct of economic research and investigations in the problems of agriculture, the continuous integration of such research with the formulation and development of agricultural programs, and the diffusion of information reporting the results of research; (c) the formulation and development, in cooperation with the departmental agencies concerned, of programs authorized by Congress for: the adjustment of agricultural production and maintenance of adequate supplies; improvement of farm income; rehabilitation of farm families in need; conservation and wise use of soil and forest resources;

crop insurance; strengthening of agricultural credit facilities; rural electrification; extension of farm ownership and improvement of tenure; expanding the consumption of farm products; correcting inefficiencies and inequities in the marketing and distribution of farm products. In addition, in the present emergency the bureau is contributing in every way possible to the rapid and successful conduct of the National Defense Program, while at the same time assisting agriculture (1) to obtain a fair share of any benefits resulting from increased employment and buying power; and (2) to minimize the unfavorable effects.

For the purpose of this statement, the work of the bureau is discussed in three broad categories: (1) cooperative land-use program formulation; (2) economic research and service; (3) regional and national program development.

I. COOPERATIVE LAND-USE PROGRAM FORMULATION

The legislative measures to aid agriculture enacted by Congress since 1933 had to be translated quickly into programs of action. These enactments sought to help farmers adjust production to changing markets, conserve soil and water, provide adequate credit and marketing facilities, provide crop insurance, develop farm forestry, retire sub-marginal land, halt farm tenancy and bankruptcy and develop family-sized owner-operated farms, improve the well-being of low-income farm families, and effect improvements in local tax and fiscal situations. Many of these problems were often met on a single farm and in a single community, but in varying forms in the different regions of the country.

These manifestations of disparity and maladjustment in agriculture represent what was known as the farm problem. Each of the separate programs which had been approved to meet these several situations dealt primarily with only a part of the total farm problem. Conflicts and contradictions between the several parts were to be expected in the degree to which each program was planned without reference to the others.

The formulation of unified, consistent programs is essential to the avoidance of conflicts, inconsistencies and duplication among particular programs especially in their application to local situations and individual farms. The planning of each specific program must be done in the light of activities under every other program so as to present a unified policy and course of action for the Department as a whole. The principal function of the Bureau of Agricultural Economics is to work with the farmers and all agencies in formulating these broad general lines of action.

Fitting Programs to Local Needs:

Congress recognized that the highly complex agricultural problems which these programs attacked were beyond the power of individuals to solve. But Congress and the country generally wanted individuals to assume their full share of the planning and administration of the programs. The democratic process required as much, and the infinite diversity of agriculture reinforced the requirement. How this end might

be accomplished, how confusion and duplication of effort might be eliminated, how the particular problems of the individual farm and local community might be given their due--all this has been a continuing problem before the farmer, the Department, and the various State agencies charged with the responsibility of making those programs of maximum usefulness to the farmer and the Nation. From the viewpoint of the farmers themselves, as well as that of the public agencies, it was essential that these programs of action be so planned and administered that their application on the farm would fit the particular needs and problems of each local area and yet remain consistent with the broad national objectives declared by Congress.

Among the first to see this need were the farmers themselves. They sought a mechanism that would bring to a focus on the farm and the local community the essential singleness of purpose inherent in the ultimate objectives of these several agencies. They saw the need for a procedure for blending local interests and national interests. How could this mechanism best be provided?

Experience had demonstrated to the Department of Agriculture, the State land-grant colleges, and the various agencies of action and extension that the most effective program-building for agriculture begins at the grass roots, on the farm and in the local community. Only participation by farmers in the basic process of program-building could realize the objectives sought by Congress. Success of the national farm program in all its broader aspects rests squarely on the fundamental agreement by the people on what constitutes a sound plan for the use of their land and a workable program of adjustment for their community.

Grass Roots Planning:

In July, 1938, the Department of Agriculture and the land-grant colleges agreed that the mechanism for developing this fundamental agreement at the grass roots was to be land-use planning by farmers in cooperation with federal and State administrators and technicians. In October, 1938, the Department of Agriculture was reorganized to better carry out its share of the agreement--the Bureau of Agricultural Economics being given general responsibility for program development.

Cooperative land-use planning committees are being set up in every State and every agricultural county in the United States as rapidly as possible. The typical county committee is composed of a majority of farmers, plus the county agent, a representative of the county Agricultural Adjustment Administration committee, the county Farm Security Administration supervisor and any other local, State, or federal officials responsible for the administration of a land-use program in the county. Underlying the county committee structure and fundamental to its organization are the community committees made up primarily of farmers.

Heading up this organization in each State is a cooperative State Land-Use Planning Committee. It is composed of farmers representing the

several types of farming areas, the director of the State Agricultural Extension Service, the director of the State Experiment Station, the chairman of the Agricultural Adjustment Administration State Committee, the coordinator of the Soil Conservation Service, the State director of the Farm Security Administration, the State representative of the Bureau of Agricultural Economics, a representative of the Forest Service, and other State and Department representatives who administer land-use programs.

Broadly speaking, the problems that called this cooperative program into being and the needs it was designed to meet were three: first, there was the need to find some effective and economical way of adapting federal agricultural programs to the great diversity of local situations which exist within a political jurisdiction even as small as the township or the county; second, there was the need to unify the several action programs which the Department had set up under varying Acts of Congress; third, there was the need to harmonize the activities of federal, State, and local governmental agencies solely or primarily affecting agriculture. Fundamental in meeting all three of these needs was the requirement of full and active participation of the farmers themselves, whom the Government is serving and upon whose judgment it needs to rely.

The plan of organization that has been worked out and the procedures that have been developed have proved their effectiveness in the counties where the work has been started. In more than a third of the thousand counties in which this work has been inaugurated, county and community committees have mapped the local land-use areas; the land in each area has been classified in terms of present and proposed uses; conclusions have been reached as to what adjustments in the use of land and in agricultural practices should be made in each area; usable maps and reports based on the findings have been made and submitted to interested local, State, and federal agencies; and many remedial programs already have been worked out in cooperation with the various action agencies.

Need for Common Action:

In this united effort on the part of farmers, administrators and technicians to work out a comprehensive remedial program, county committees have also undertaken the consideration of a number of local problems that are vital to a realization of the complete objective. Land-use planning committees have been quick to appreciate that some provisions of the federal program can be made to help or to hinder the solution of purely local or State problems; and that the failure to attack certain State or local problems can seriously hinder the progress and effectiveness of the federal program. Consequently, such measures as would insure better administration of local government through improvement in tax procedures and the handling of tax delinquent lands, better planned schools and roads, and better health and nutrition have been sponsored by these committees.

Particularly significant is the way in which the land-use planning program has proved itself effective not only in fitting

programs to local conditions and in unifying public programs but also in developing new programs and in helping people and local committees to help themselves, through individual and group action. This is apparent in the partial record of accomplishments in hundreds of counties in which it has been possible to initiate land-use planning with the limited funds available. Since the process emphasizes local decentralized action in coordinating the various programs and in fitting them to local conditions, it is impracticable to bring together complete information on the results obtained in all the counties. The reported instances of accomplishments, therefore, are merely representative of a much greater number, many of which probably never will be reported outside of the individual county, but which, together, constitute a major part of the constructive results of the planning program.

Here, in brief, are representative examples of cooperative land-use planning from a few of the thousand counties where the program is now under way:

Ward County, North Dakota

Carrying with them a culture and an agricultural economy well adapted to a more humid climate, the homesteaders of Ward County, North Dakota, got ahead fairly well as long as rainfall was above average. But when the dry years came, they began to realize that many of their difficulties lay in the fact that the agricultural economy which had been transplanted from a humid area to the middle of a climatic transition belt (15-20 inches annual precipitation) had not been sufficiently modified. An ever-increasing relief load almost equaling in 1938 and 1939 the total of all taxes levied in the county; progressively increasing tax delinquency (in 1938, 16% of all land in the county was subject to tax deed and 72% of all land was delinquent in varying degrees); these and other equally disturbing conditions were additional indications of basic maladjustments that millions of dollars of outside assistance, continued tax moratoria and countless other means of deferring the final day of reckoning had not remedied.

To land-use planning committees who sat down to study the facts and attempt to develop solutions, it soon became obvious that larger or continued dosages of these same medicines were not the remedy. Further analysis revealed that basic changes in the agricultural economy of the area were essential to stability and fair standards of living.

In line with these conclusions: (1) individual farmers are changing their farm organization and farming practices; (2) the Farm Security Administration, through its rehabilitation, loan, and tenant purchase programs, and the Farm Credit Administration and the Bank of North Dakota, through their loan and land management policies, are now actively assisting in the achievement of these adjustment goals; (3) the Agricultural County Planning committee is adapting its program, both soil-depleting allotments and soil-conserving practices, so as to encourage the same adjustments; (4) local government agencies, including county commissioners, township boards, county superintendents of schools, and local school boards are endeavoring to adjust land assessments and governmental services which will be consistent with the tax-paying ability of the land; (5) disorganization and consolidation of township boards and school districts is being considered as a means of curtailing

governmental costs without dispensing with any essential public service; and (6) the Extension Service is rearranging its educational program in Ward County, especially those activities designed to encourage expansion of the livestock enterprises and the building up of feed reserves.

Teton County, Montana

With its lands ranging from rich irrigated areas through several grades of farming lands and range lands to steep, mountainous forest land, Teton County's committees have had to appraise and analyze many very broad and complex problems and enlist the assistance of people whose interests were extremely varied. For the same reason, the programs of many different agencies had to be considered in relation to the over-all land-use adjustment program.

One of the first determinations of the land-use planning committees in Teton County was that 20,000 acres of land now being used for wheat growing was unsuited for cultivated crops. They also discovered that much additional sod land, similarly unsuited for cultivated crops, was continuously being brought into production, and while no serious results had accrued thus far, the potential ill-effects were great.

Many agencies are contributing to the remedial program developed by the committees. The State Land Department adopted a new lease clause prohibiting the cultivation of State-owned lands which have been classified as unsuitable for cultivation. The Agricultural County Planning committee designated these same grades of land as ineligible for the establishment of soil-depleting allotments and is using the planning committee's classifications in assessing deductions for breaking up sod land that should remain in grass. The Farm Security Administration and Farm Credit Administration have adjusted their farm organization, management and loan policies to conform with the policies developed by the land-use planning committees for the use of this submarginal farming land.

The recommendations of the land-use planning committee pertaining to irrigated farms have resulted in a plan whereby an irrigation district has furnished material and Farm Security clients have provided the labor for clearing and repairing ditches and constructing new laterals, which is resulting in a more efficient use of the available water. Local governmental officials are reclassifying farm land unsuited for cultivation and retired from farming as grazing lands and land values are being adjusted to conform with generally accepted productivity indexes.

The Forest Service is alleviating a periodic shortage of irrigation and livestock water, which considerably curtails the maximum usefulness of land resources, by transplanting beaver colonies from areas where they are now damaging property to the headwaters of the streams where the permanent storage ponds built by these animals will regulate the flow more uniformly throughout the summer season.

Caswell County, North Carolina

Caswell County land-use maladjustments, unlike those in Teton County, Montana, were already firmly entrenched as a result of 75 years of progressive depletion of physical, economic and social resources resulting from

virtual dependence on a one-crop system of tobacco farming. The first task which confronted these cooperative land-use planning committees, therefore, was to determine the most practical means by which this deterioration could be arrested and agricultural stability restored. Although realizing that the extensive depletion of physical, economic, and social resources would necessitate a considerable amount of outside assistance, the planning committees nevertheless proceeded to develop an adjustment program in which individuals and cooperative groups could participate effectively.

Cooperative purchases of lime spreaders, terracing equipment, stalk cutters, tractors and various types of machinery necessary for conservation practices, and cooperative ownership of purebred sires, was given added impetus by a large increase in the number of community service loans of the Farm Security Administration. Another cooperative venture, an outgrowth of land-use planning, was the establishment of a milk route through an area that formerly had no profitable way of disposing of its surplus milk. Terracing has been greatly expanded--commercial contracts increased 300 percent and the Soil Conservation Service supplied equipment that has terraced many additional acres.

A concerted effort by all local people and federal agencies to diversify the type of farming is, even at this early date, showing significant progress. Farm Security Administration and Farm Credit Administration are making the shift possible for many farmers by means of a loan policy which encourages livestock and poultry production, home gardens, and cropping systems incident to this shift. The Soil Conservation Service is assisting the farmers in writing farm plans and in conducting cultural practices which are consistent with these changes in type of farming. The programs of the Extension Service and Vocational Education are also centered around this shift from one-crop farming to a more stable diversified farming system. Under the leadership of the planning committee, almost every farmer is growing an adequate home garden, an accomplishment the value of which cannot be over-emphasized.

Most important of all the results from land-use planning in Caswell County is the change in the attitude of the farmers in the county. They are now taking pride in tackling and solving problems which before seemed hopeless to them. In this they look to federal and state agencies for assistance, but not paternalism.

Quay County, New Mexico

Here also, the work of land-use planning committees has accentuated the initiation of local programs designed to offset social and economic handicaps resulting from low incomes, sparsity of population, and climatic hazards. One community committee took the initiative in organizing a cold storage locker plant, another committee organized a cooperative bean cleaner and warehouse. At the request of the county committee, the State Welfare Department initiated, in cooperation with the Surplus Marketing Administration, a hot school lunch program in nearly every school in the county, in order to correct serious dietary deficiencies. In order to reduce the extensive damage being done by rodents, the county committee sponsored a

rabbit drive. Local people, cooperative with the Fish and Wildlife Service, successfully carried out a program that exterminated tens of thousands of these animals. At the same time, the county committee and local farmers have assisted the State Game Department in establishing a wildlife refuge in an area unsuited to any other use.

The Quay County Committee, however, recognized the need for additional land-use information before they could approach some of the more complex problems. To obtain it, they have asked for a land-use study participated in jointly by the Agricultural Adjustment Administration, Farm Security Administration, Bureau of Agricultural Economics, and Extension Service. This study is now being developed.

Adair County, Iowa

Even some of the fertile prairie areas of Iowa have serious land-use problems. Many of the farming practices being followed in rolling and hilly areas are not conducive to erosion control and fertility maintenance. The Adair County Planning Committee concluded, after careful study, that with slight modifications, several of the Department's programs could be made more effective in combating these physical problems without reducing their effectiveness in achieving national objectives. So, in cooperation with the Agricultural Conservation Committee, a special agricultural conservation program was developed, and approved by the farmers of the county by written ballot, with provisions for higher rates of payment for contouring--the additional cost being offset by lower rates of payments on the general depleting allotments in the county.

Farmers and Agricultural Adjustment Administration township committee-men were instructed in the technical operation of running contour guide lines by technicians from the Soil Conservation Service, Agricultural Adjustment Administration, and Extension Service. In cooperation with the National Youth Administration, Soil Conservation Service, and the Extension Service, NYA boys were also given this training so that they could assist farmers in running contour lines and other unfamiliar conservation practices and techniques. The net effect of this coordinated program was to increase the contouring planting of crops in Adair County from a few hundred to over 5,000 acres.

The County Board of Supervisors agreed to put into operation the Iowa Limestone Act, providing for large-scale purchases of agricultural limestone at reduced cost. This resulted in farmers using approximately 6,000 additional tons of lime during the first ten months of 1940. The Farm Security Administration contributed to this increase by making supplementary loans to buy additional limestone and legume seed a part of its program in the county.

The land-use planning subcommittee on taxation problems found that there was great inequality in assessments of land for taxation purposes, as between the better land and the poorer land. In at least one township (Walnut) the trustees and assessors have initiated a program to reassess land on the basis of productivity, using the percent of land in crops, corn yields, and the Agricultural Adjustment Administration productivity index

to determine the differentials between farms. The county board of supervisors is now working out a plan for similarly adjusting assessments on all land in the county.

Adair County farmers recently voted by an overwhelming majority to establish a soil conservation district. The land-use planning committee took an active part in the steps leading up to the formation of the district and in the development of the district program.

New England Counties

Land-use planning committees in several New England counties decided that unimproved lands--woodland pastures and unpastured woodlands--were not contributing as they should to farm and community support. They agreed that pastured woodlands are neither good pasture nor good woodland and concluded that good management of these lands called for developing part of the unimproved acreage as pasture and part of it as woodland. As results:

In Chittenden County, Vermont, the Agricultural Adjustment Administration supplemented the regular agricultural conservation program with a special pasture clean-up practice which had not been available previously. On land capable of carrying one animal unit for every two acres renovated, payments are now made for removing brush, leveling, mowing, reseeding, liming, and fertilizing.

In Belknap County, New Hampshire, a ten-year pasture program was developed. It calls for the improvement of sufficient pasture within the decade to care for all the livestock in the county. The most important feature of the plan is a special agricultural conservation program designed to encourage the use of lime and phosphate fertilizers on pastures. The regular program provided payments under the general soil-building allowance for the use of these materials on various classes of land. The new program provides that if these materials are applied to non-crop open pasture under the general soil-building allowance, an additional amount of lime and triple superphosphate can be obtained under a special pasture allowance that was set up. Making use of this special program, farmers have been able to obtain lime and superphosphate for improving twice as much pasture land as was possible under the regular program. Payment for practices which were already well-established in the county were eliminated, thus making funds available for these new pasture improvements.

In Windham and New London Counties, Connecticut, similar programs were initiated.

Defense Activities:

Defense activities have served only to intensify the need for cooperative land-use planning. Many problems have already arisen as a result of the vast expansion in army cantonments, bombing ranges, proving grounds and defense plants. It is apparent that thousands of farm families will be affected directly and many more thousands indirectly.

These problems include equitable purchase prices for farm land, reimbursement for losses due to immediate evacuation, relocation of farm families, housing, adjustments to meet local demand for agricultural products, etc. Even more important is the necessity of beginning now to lay plans to meet the impacts that are sure to result when these plants and other defense activities are discontinued at the end of the emergency. The needs of total defense also have given added significance to the problem of achieving adequate nutrition for all farm people--40 percent of whom now have diets below those needed for minimum health standards.

A few examples of the contribution of the Bureau of Agricultural Economics through cooperative land-use planning to the solution of these problems follow:

Radford, Virginia

As part of the Defense Program, a large powder plant is being located near Radford, Virginia, a strictly rural area. Immediate problems were housing facilities for workers in the plant and opportunities for rural people to obtain employment in construction and operations. How poor were rural dwellings and would farm people be interested in having an opportunity to acquire these houses at the end of the emergency? Could all or some of the houses needed for defense workers be located in rural areas to be purchased at appropriate prices by farmers when the emergency ended?

Cooperative land-use planning provided the answers. In three weeks, the Defense Housing Coordinator was informed that 969 farmers out of more than 6,900 within 25 miles of the plant were interested in leasing land for the construction of such houses, and the exact location of each prospective dwelling was made available to him. At the same time, the Bureau obtained from each of the six small towns in the area a statement showing the number of houses each of them could absorb at the end of the emergency, the adequacy and availability of public utilities, etc. Together this provided the needed information on which those in charge of the housing program could decide the most useful locations for defense houses. As a consequence, it is very likely that 25 percent or more of the houses will be built in rural areas.

The same planning organization, in five days, made a complete analysis of rural off-farm employment in the area. It found that 2,100 farm people within 25 miles of the plant wanted off-farm work, while only some 300, less than 10 percent, of the 3,500 persons employed in construction were farm people, and that no procedure was available to obtain prior consideration for these people in plant operations. These facts were brought to the attention of the Agricultural Commissioner on the Defense Advisory Council, and were used by the Commissioner in developing a policy and procedure for obtaining preference for local rural people in these types of emergency employment.

Nearly 500 farm men and women contributed their services to the emergency planning job and all Department agencies cooperated wholeheartedly, the Bureau, itself, supplying the full-time services of six

men for a three weeks' period. These land-use planning committees in the four counties affected by the Radford plant are continuing to study the many other problems arising from the location of the defense plant in the area, to develop recommendations for the solutions of these problems and to obtain the action from these recommendations.

Weldon Springs, Missouri

Typical of problems growing out of the Defense Program were those resulting from the location of a power plant at Weldon Springs, Missouri. About 20,000 acres were needed and 234 farm families lived on, and obtained their living from, this land. The War Department contracted with a private real estate dealer to do the optioning. He was encountering growing resistance when the St. Charles County Land-Use Planning Committee took hold of the problem. At its request, representatives of the Defense Commission, the Department of Agriculture, and the real estate dealer met with the county committee. Information was exchanged, questions asked and answered, and plans developed to expedite the acquisition of the land and at the same time to deal fairly with the farmers whose land was to be acquired.

Under the leadership of the land-use planning committee and with the help of all agencies of the Department and the particular assistance of the Bureau, which assigned a full-time employee to the job for two months, (1) all farmers in the area were given the facts as to their rights but urged to cooperate in the nation's defense program by optioning their land as rapidly as possible, (2) a procedure for determining fair dispossession costs, particularly for tenants, was developed and used by the real estate dealer, (3) arrangements were made to issue separate checks to tenants, (4) a complete survey of economic status and needs of every farm family was made, (5) on the basis of this survey, each family needing assistance in moving, in locating another farm, or temporary residence, or in obtaining off-farm employment, particularly in plant construction, was informed of the agency or agencies best equipped to render this service, (6) arrangements were developed for boarding livestock on neighboring farms, for storing machinery, etc., (7) lists of farms for sale or rent were prepared for a wide area in St. Charles and neighboring counties and made available to local farmers, the Farm Security Administration, etc., (8) arrangements were made to have local trucks available on "moving" day with permission from the State Highway Commission to charge below-schedule rates for the emergency and for the CCC and Red Cross to "stand by" as a last resort, (9) a survey of vacant residences was made which could be used temporarily by those families who were unable to find permanent locations by moving time, (10) arrangements were made to keep a local school on the edge of the purchased area open until operations actually began.

These activities had to do solely with the emergency created by the need for almost immediate acquisition of land in order to start construction of the plant. The land-use planning committee is now actively engaged in planning for the intermediate and long-time impacts.

Land-use planning committees are meeting and solving, with the assistance of all agencies of the Department, problems similar to these

at Rolla, Missouri, a 65,000-acre cantonment; Burlington, Iowa, a 15,000-acre defense industry plant; Madison, Indiana, a 40,000-acre proving ground; Anniston, Alabama, a 36,000-acre army camp expansion; Little Rock, Arkansas, a 30,000-acre National Guard camp expansion; and many others. This year, the Bureau has been diverting a good deal of its limited resources to these areas, at the expense of many other even more important activities that may not have quite the same urgency but which must be undertaken now if solutions are to be forthcoming when they will be needed.

During the current fiscal year cooperative land-use planning will make substantial progress in more than 1000 counties in 47 States. More than 70,000 farm men and women are actively at work on the committees in communities and counties, probably half a million farmers will discuss and decide, in open community meetings, what recommendations the committees should make to local, State and federal agencies for action.

The needs which led to the inauguration of the land-use planning program are heightened by the impact of the war on agriculture. The burden of adjustment ahead of farmers will unquestionably be heavy. The burden will be lighter, the adjustments more satisfactory, if farmers themselves help plan them through this cooperative land-use planning approach.

II. ECONOMIC RESEARCH AND SERVICE

This broad function of the Bureau of Agricultural Economics is segregated here for convenience in discussion. Actually, it is impossible under practical conditions to separate research from the cooperative land-use planning and program-building functions of the Bureau. Farmers and administrators of action agencies want the product of research in useful, applicable form; the research man must know the problems of the farmer and the action agency thoroughly if his research is to be useful. There must therefore be continuous two-way communication between the farmer and the researcher as well as between the action agency and the research worker; and the translation of a need into a research project, of a research project into a farm program useful to farmers, ought to be informal, unbureaucratic, and speedy.

The services of this Bureau's research and information staff are relied upon alike by the Congress, the farmer, local and state agricultural agencies, other Bureaus in the Department, other government departments, and private industry to provide them with economic facts needed in their particular work. The need for and the demands upon this phase of the work of the Bureau have increased tremendously in recent years. Words and phrases like "surplus," "acreage adjustment," "trade barriers," "parity," "crop insurance," "technology," "rehabilitation," to list only a few, suggest the scope and complexity of the demands upon economic research today. The thousand and one changing elements of the farm problem, and the changing ingredients of current and prospective farm programs, require a heavy contribution from economic research.

Special agricultural problems growing out of the war and the defense program have also laid heavy demands upon the economic research

and service personnel of the Bureau. The response of the Bureau to this demand will be discussed at the end of this research section.

Some Typical Research Activities:

A detailed record of all the research and service of the Bureau during the past year would include not only the formal economic research projects completed or advanced within the year, but also thousands of letters and telephone requests for specific information and analysis received from members of Congress, other agencies of the Government, from farmers, business and industrial executives, and the general public. In lieu of this detailed record, a few representative examples of the Bureau's research activities are cited here, as follows:

The Bureau completed at the request of Congress (H. Doc. 277, 76th Congress, 1st session) a study of cotton crop insurance and a suggested plan for carrying out such a proposal. The Bureau established the actuarial basis for the crop insurance program established for wheat, and has been analyzing the possibilities for expanding the insurance program to include other farm products as well as studying the experience in wheat for improvements in that program.

The effect of broad national programs on regional interests within agriculture has been the subject of concern by farmers and Members of Congress. In order that specific information on this problem might be available, the Bureau has made and published careful analyses of the probable effects of the agricultural conservation program on dairy and livestock production in the Midwest. Studies in the cost of production of a variety of farm products and of citrus fruits have been completed and are currently revised by the Bureau. Studies of the farm debt problem, of interest charges on farm mortgage debt and the average interest rates charged by lenders, and the distress transfers of real estate are projects that have recently been completed by the Bureau in its analysis of farm credit problems.

Problems of increasing magnitude for agriculture have been created out of the pressure of population on the land. The depletion of soil and forest resources, coupled with the fact that farm population is now at the peak, means that some 3,000,000 low-income farm families are confronting an increasingly severe struggle for existence. The Bureau's research on rural living standards and on population trends, as well as its knowledge of our forest and soil resources, has suggested possible courses of action. Specific studies for improving living standards of farm families, of the prospects of rehabilitating distressed farmers in the drought area in the Great Plains, of the effects of drouth and depression on the rural community, now provide the basic analyses needed to cope with the problems facing the people on the land.

Few programs have been received as favorably as the food stamp plan. Economic analyses and suggestions for action made by this Bureau were indispensable to the inauguration of the food stamp plan. In co-operation with the Federal Surplus Commodities Corporation, the Bureau is carrying on research and analysis of the operation of the program to determine its effect on farm income and to find ways to improve it. At present our studies indicate that the plan can be expected to increase farm income by fully as much as the amount of the subsidy.

Surveys of the marketing systems of many of our large centers of population, providing an analysis of their present condition and making recommendations for improvement, have been completed by the Bureau, and already have led to the building of better local markets. A report on the wholesale produce markets of New York City is the most recent one.

The Bureau's special report on "Barriers to Internal Trade in Farm Products" attracted nationwide attention and provided the factual basis for practical measures undertaken by both state and federal agencies to reduce such barriers. Work in this field by the Bureau is continuing through an interdepartmental committee on interstate trade barriers.

In its studies of income and outlook for agriculture this Bureau early saw the effects that the war developing in Europe would probably have on price and demand for farm products. The Bureau provided farmers immediately with current information seeking to protect them against any emergency that might develop and to guide them in marketing their crops. The continuing research carried on by the Bureau in the field of farm income and price analyses is necessary in the daily operations of several of the action agencies of the Department, as well as to farmers and the general public.

The Field of Economic Research:

In general, the economic research and service work of the Bureau falls roughly into four categories: (1) the land and its uses, including particularly all the problems coming under the head of the economics of production; (2) the people who live on the land, their standards of living, their social and economic organization as it affects rural life; (3) marketing and transporting to the products of agriculture; (4) price and income analysis and outlook, trends and significance of trends of farm production, and the relation of agriculture to other economic groups and to the economy as a whole.

Research in the land and its use necessarily invades problems of farm finance. The burden of mortgages on the land and the problems of farm finance, both in the long and short term fields, are serious for the farmer and call for broader activity by the Bureau and a more thorough knowledge of the root causes of these difficulties. Nearly 40 percent of the total farm mortgage debt of about \$7,000,000,000 is today financed through federally sponsored agencies. Farmers, particularly in the Great Plains area and the Southern Cotton States, where the credit problems are the most acute, foreclosures the most numerous and tenancy is increasing the most rapidly, are seeking to develop programs for improved credit practices and debt adjustment. The need is for readjustment of debts in relation to the debt paying ability of particular farms and borrowers, for detailed analysis of local and regional mortgage problems, better appraisal methods for determining the loan base and more thorough consideration of mortgage credit policy in terms of its effect on land use.

Approximately 25 percent of the total farm mortgage debt owed to the Federal Land Banks and the Commissioner was estimated to be delinquent in 1940 and 60 percent of the national farm loan associations in the Federal Land Bank system had their stock so far impaired by 1940

that they could not issue stock and receive applications for loans. Faced with these conditions, which have been aggravated over a period of years by heavy real estate taxes and tax delinquency, farmers, government agencies, both State and Federal, and county land-use committees have substantially increased their requests to the Bureau for help in analyzing the credit, taxation and insurance problems that confront agriculture.

To meet these needs the Bureau, in cooperation with other State and Federal agencies, is trying to improve debt adjustment procedure in ways which will adequately protect lenders and at the same time obviate the heavy social and economic cost of extensive foreclosure proceedings. The Bureau needs to expand its work of gathering information on farm mortgage credit by counties and by individual farms. It should be possible to adjust mortgage credit and lending practices so that they will help the readjustment necessary in some regions to meet the impact of the present war in Europe.

The work and the reports of cooperative county planning committees have made it quite plain that credit and tax problems are among the most important phases of their program and will become of increasing importance as time goes on. In many counties, credit and tax subcommittees have indicated the need for technical assistance in carrying on their studies. It is obvious that a large number of changes in farming practices being recommended by the county committees will require financial assistance to put them into effect. Farmers in increasing numbers realize that the accomplishment of the objectives of the program will depend to a considerable extent upon better adaptation of credit and taxation to the needs and debt-carrying capacity of the farmers. To effectively implement this program it is highly important that field men be available for developing a program for improved credit practice, counseling county committees on their credit and taxation problems and working toward their solution. From the national point of view it is equally important that these credit recommendations by farmers be coordinated and presented for consideration to the agencies responsible for the agricultural credit programs.

Increased research and service in the field of farm risks and farm insurance have grown out of the activities of the Federal Crop Insurance Corporation. The Bureau has been asked to explore the possibilities for extending this type of insurance to crops other than wheat. Research on insurance against other types of farm risks, such as fire prevention and fire losses, livestock losses, losses from floods, hail, and windstorms, losses of time, health, and life from accidents, and studies of life insurance and old age insurance covering the possibilities of inclusion of farm people under the Social Security Act, also await intensive study.

Tenant Farming Increases:

The growth of farm tenancy and the increased demands for legislative action to deal with it require that research which the Bureau has started in tenancy and tenure be expanded in the direction of the new problems we face. Studies in farm tenancy and land tenure in the past have been concerned almost exclusively with studies of landlord-tenant

relationships and means of improving this situation of the tenant. It is necessary, if we are to understand the land tenure problem completely, to undertake a rather comprehensive program of investigations into the ownership side. This will be true regardless of the impact of the war upon agriculture.

Increasing requests are being made by members of Congress and others for information as to the changes in numbers of farms within the several tenure groups. At the present time, there are no data directly pertaining to the numbers of farms whose status changes from owner operated to tenant operated and from tenant operated to owner operated, etc. for the entire country or regions and States within it.

A new line of investigation needs to be undertaken into the effects of drainage and irrigation district organization and finance upon land use occupancy. Such agricultural improvement districts directly influence agricultural development and heavy charges and default cause extensive delinquency and deter new settlement. The increased demand that the Nation will make for increased efficiency of use of our natural resources will make imperative a knowledge of drainage and irrigation district organization as one means of effecting land use adjustments.

Specific problems in the practical field of land appraisal have become more numerous in recent years, particularly in determining lease rates on publicly owned range lands; the evaluation of land on the basis of income as well as factors other than income which affect land values; and the effect of interest and principal payment plans in connection with contracts involving farm real estate. There is need for the development and evaluation of possible means of curbing unwarranted land value increases, especially if a period of substantially higher prices should come with the effects of the war and our defense program.

Population Pressure Acute:

There is a vast human problem confronting the nation in the people who live on the land and in the standard of life they are able to maintain. Despite the improvement that has come in recent years 3,000,000 farm families are existing on low incomes and standards of living. Yet farm population has increased by 200,000 each year since 1930, meaning a total increase, in spite of some migration, of about 2,000,000 persons. The fastest increase has been in the poorest areas. Technological changes within agriculture, affecting it on the supply side; and the closing of foreign markets as a result of the rise of controlled economies abroad and foreign wars, affecting it on the demand side, heighten the seriousness of the problems of population pressure.

Studies of the number and composition of farm population, migration to and from farms, and the trends in relation to resources both for the nation as a whole and for local areas, and of farm labor with particular reference to local labor requirements for seasonal workers are essential in developing programs to meet these emergency problems and to assist State and Federal agencies in directing settlement and the readjustment

of population in order to obtain the best utilization of our land resources.

Annual estimates of farm population and of movement from and to farms have been made by the Bureau for twenty years. These are in wide demand within the Department where they serve as a basis for measuring trends in per capita consumption, production, and income, and have been used in preparing material relating to parity prices, as directed by the Congress.

The Problem of the Migrant:

Some 6,000,000 persons moved from farms to towns and cities between 1920 and 1930, but between 1930 and 1940 this number was reduced to less than 2,200,000. Much of the migration which has taken place during recent years has created serious problems of adjustment, as in the Pacific Coast States. Nonetheless, the prospects in commercial agriculture are that a considerable migration to cities or to other areas is necessary because commercial agriculture tends to absorb fewer persons. Migration from poor land areas has declined more rapidly than migration from better land areas, but much detailed study is necessary before anyone can give the reasons for it.

A decline in the rate of rural migration, in view of the relatively high rate of population reproduction in rural areas, creates serious problems of rural welfare. At the request of the National Resources Committee, a study was undertaken in the Northern Great Plains during the past year to determine the characteristics of the out-migrants, the effects of such out-migration and probable future developments. For the fiscal year 1941, similar studies are planned for the Southern Great Plains, including areas where mechanization has been rapid. With continued displacement due to mechanization and decreases in markets, and with the possibility of industrial expansion due to defense expenditures, it is necessary to be prepared to make studies in a number of areas, including especially the Great Plains, the Cotton Belt, Florida, the Northeastern Industrial Areas, the Far West, and the Southwest.

Studies made by the Bureau have already indicated that various agencies, including the Bureau of Reclamation and Farm Security Administration, could develop more stable agricultural settlements and save large amounts of money if they knew more about selection methods and techniques. Specifically the problem of resettlement in the Columbia Basin Irrigation Project is currently very important and requests have been made for assistance in the selection of settlers. Also, the Farm Security Administration has requested the development of methods for the selection of settlers for their projects.

Despite the Nation-wide attention that has been drawn to the migratory farm labor problem in California, relatively little is known about the situation of the million or more seasonal farm workers elsewhere. With respect to the Atlantic Coast, for example, there are those who say that in this area the worst features of the California situation are reproduced; others assert that, aside from an area or two of extreme

concentration, no problem exists. Data are lacking as to local labor requirements for seasonal laborers, the extent to which local supplies of labor meet the needs, the extent to which outside labor must be brought in, and the means resorted to in securing labor -- data which the United States Farm Placement Service requires and which it has vainly requested of this Department. At the present time, in most areas, the farm labor market is very badly organized. If the effective mobilization and distribution of industrial and agricultural manpower should become essential, this lack would be crippling, and either agriculture would suffer a shortage of labor or industrial needs would fail to be met adequately. Moreover, such information is necessary to the Farm Security Administration as a basis for determining the need for, and the proper location of, its migratory labor camps. Owing to poor distribution of seasonal labor, the relief burden of fruit, truck crop and other areas is heavier than it need be, while laborers suffer from underemployment. Present data on wage rates and earnings in seasonal farm occupations are also very inadequate.

Technology and the Farmer:

Technical developments and mechanization have been progressing rapidly on the farm in the last few years and there is need to study the effects of these changes on agricultural welfare and adjustment programs if we are to deal realistically with the problems they create. A study completed by the Bureau this year shows, for instance, that between 1915 and 1939 motor equipment has displaced nearly 10 million horses and mules on farms, and has thus eliminated the need for the production of 30 million acres of cropland and 15 million acres of pasture. Mechanization has been displacing farm labor and farm operators and this force has played a part in the widely recognized problem of migratory workers. Adoption of the small tractor in the South will contribute even further to such displacement, possibly as many as 400,000 families in the next ten years. Because of the element of change that is constantly involved, there is great need for a better way of predicting when a development of this kind will become widely adopted. Research that will bring together all the relevant information on technical developments affecting agriculture and the interpretation and analysis of these developments, indicating their significance and the action that needs to be taken, will help to meet this need.

Finding Wider Farm Markets:

No agricultural program can be at all complete unless it deals as effectively with the problems of marketing, distribution, transportation and processing as it does with land use, conservation and farm management. Research and program development in the field of marketing and transportation has, therefore, been one of the important tasks of the Bureau. Much effective work has been done in this field, including the development of surplus disposal programs such as the Food Stamp Plan, the reorganization of a few large city markets for lower cost of marketing fruits and vegetables, the development of a federal-state program for eliminating unnecessary inter-state trade barriers, and a general analysis of marketing costs and charges as a basis for plans to increase efficiency.

Some of the most complex problems of agriculture are centered in the market place. About 60 cents of each dollar spent by American consumers for food and clothing goes to pay charges for transportation, processing, distribution and selling. The farmers and the public are asking that greater attention be given to the marketing of farm products, to develop a basis for building a more efficient and more satisfactory marketing system. Not only is it necessary that an adequate foundation be laid for developing a sound long-time program of improvement in marketing, and that national policies in regulation of transportation rates be examined, but it is of vital importance in these uncertain times that public agencies be in a position to expedite the movement of farm and food products.

Efficient Marketing System Needed:

But while certain studies have been made which are of great value in showing how methods can be improved and costs reduced by individual companies or associations, no general or comprehensive survey has ever been made to determine in a broad way what changes would make the whole structure of marketing more efficient. Such a survey should determine desirable changes in the whole structure of agricultural marketing, in order to develop greater efficiency in marketing methods and facilities, including number, kind, sizes, and locations of processing plants, and such facilities as concentration markets, retail outlets and other channels through which the agricultural products move from the farm to the consumer. In order to do this it is necessary to make a general evaluation of the marketing system as a whole, taking into consideration the economic and social effects of alternative policies in marketing and transportation. The problems involved are primarily of national or wide regional importance. For this reason there is great necessity for the Bureau to assume the leadership and secure State cooperation in promoting and encouraging the growth of a more efficient marketing system.

Marketing research must keep pace with developments in production and distribution. Millions of dollars have been lost through markets which have not been based on the proper foundation. It is the aim of this Bureau to help provide such a foundation for action programs in marketing.

Economical and efficient distribution of our agricultural output is obviously of vital importance to our national defense and the national welfare. Congestion and breakdown in the distributive system which restrict the movement of needed supplies, cause violent price fluctuations and impede the attainment of desired national objectives have been all too frequent in the past and ought to be guarded against to the fullest extent in planning for any emergency that may now arise. The period of adjustment through which we are now passing, and the readjustments the future holds, have brought many perplexing problems relating to marketing and distribution of farm products. In planning for these new developments the factual information obtained through the basic studies in marketing by this Bureau will be of inestimable value in determining the best course of action to take.

Farmers' Transportation Problems:

Adequate and efficient transportation facilities are essential at all times in maintaining a sound national economy, and in an emergency involving the national defense they become of critical importance. The farmer, as perhaps the largest single user of transportation services of all kinds, is likely to encounter even more serious problems in this field than he has in the past. The price he pays for this service bulks large in his overhead costs; over a period of years payments by farmers for railroad-borne freight were equal to almost 10 percent of annual farm cash income. Studies by the Bureau deal directly with the economic functioning of all the facilities used in transporting agricultural products, including railroads, motortrucks and water carriers, and the way in which transportation service in general affects the markets and the income of agriculture.

During the World War of 1914-18 economic relationships were greatly disrupted and in the readjustments which followed agriculture and industry did not fare equally. The economic disparities which developed then have never been corrected. One of the chief sources of irritation has been the change in the relationship of railroad freight rates to the prices of farm products. Congress has sought to correct the existing disparities through such measures as the Hoch-Smith resolution directing the Interstate Commerce Commission to afford preferential treatment to disadvantaged industries, and agriculture in particular, by making freight rate adjustments to facilitate the movement of commodities. The effectiveness of the Commission's efforts to accomplish these objectives from the standpoint of improving the economic position of agriculture is being examined by the Bureau. In view of increased legislation and regulation of various means of transportation and the growing importance of highways and waterways in moving farm products to market there is an urgent need today to carry these studies still further. If the interests of agriculture in transportation service and the position it occupies at the present are to be adequately represented before such commissions as the Interstate Commerce Commission, basic research of this nature is absolutely necessary in the presentation of its interest in the case affecting it.

Farm Income and Prices:

Research on agricultural prices and farm income is basic to all action programs. Without dependable information on the factors affecting **prices and incomes** received by farmers, and the various conditions influencing changes in these factors, little progress can be made in assisting farmers to overcome unfavorable conditions and to make both individual and industry-wide plans for improving agricultural conditions. Essential to the concept and the administration of the program seeking to insure the farmer parity in our economy is the continuing research of this Bureau in providing and analyzing statistics in the field of farm income and prices paid by farmers for the commodities they buy and the prices they receive for the commodities they sell.

The Bureau of Agricultural Economics maintains a constant stream of useful information to farmers and agricultural business men, based upon a continuously developing research program. The results of this

research go into innumerable reports to administrative officials and members of Congress, to be used in connection with the evaluation of legislative proposals and the administrative supervision of agricultural programs. In this way, the results of research are made available promptly as needed without waiting for completion of entire projects and the publications of formal reports. All of these individually small, but collectively important, results of research in this field constitute our basic information regarding the behavior of agricultural prices and incomes and the factors responsible for changes in them.

As a result of this research, there has been developed and organized a reservoir of statistical and historical data and analyses having a bearing upon the agricultural situation. The price analyses and economic research necessary to bring together the facts relating to supply and demand conditions throughout the world are headed up in this project, including the statistical analyses involved in the publication of the reports on the agricultural situation. These reports cover present and prospective conditions with regard to supply, demand, and market trends for agricultural products. They analyze domestic and foreign conditions and appraise the various factors which will influence prices. Industrial activity and consumer incomes are taken into consideration as well as the various governmental activities. For an understanding of agricultural problems, statistical and historical research affords the necessary perspective. Accurate knowledge of what has taken place and how prices react to certain conditions is invaluable to those who are seeking to secure for agriculture an adequate return.

The Demand For Factual Analyses:

The need for statistical and historical research has greatly increased in recent years because of the requirements of the agencies and programs set up by Congress in aid of Agriculture. Analyses are necessary, first, in the formulation of policy and specific legislation based on an understanding of causes of price and income changes and the probable effects of alternative remedies. In the consideration of plans such as subsidizing exports, reducing marketing margins, adjusting agricultural production, stabilizing prices by means of loan programs, and planning for national defense, points frequently are encountered which can be answered only by factual analysis.

In the second place, statistical research is indispensable in administering specific measures in aid of agriculture after they have been set up by the Congress or by State agencies. It is much more satisfactory and less costly, in the long run, to provide in advance for this necessary statistical information than to wait until the acute need arises.

Members of Congress are continually receiving from constituents requests for information. These requests are referred to the Bureau of Agricultural Economics in increasing numbers, and the Bureau is anxious to reply to such requests promptly and usefully. When the inquiries require them, supplementary studies are undertaken. Likewise, the needs of Congressional committees frequently entail considerable statistical research.

National defense planning which relates to agricultural supplies, trade and prices of agricultural commodities, etc. must be based upon thorough economic statistical studies drawing upon many agencies in the Department and outside for much of the basic data used in statistical analysis. Many of these studies are being executed under this project. Local government agencies request information about economic conditions in their local areas and answers to economic problems of agriculture arising therein. Although these demands for the results of statistical research for use in answering current pressing problems in policy and administration of action programs furnish the most obvious reasons for providing adequately for such work, the needs of farmers, local business firms, both cooperative and private, and State agencies are even greater. Increasingly larger numbers of farmers are coming to look to the Bureau for information and analysis bearing on prospective changes in supplies, demand, and prices of the products in which they are interested for use in planning their production and marketing. Business firms use this information in connection with their buying and selling operations.

Defense Activities:

The Defense Commission has called upon the Bureau to analyze, summarize, and keep up-to-date basic data on the major agricultural commodities; to report on the food situation, generally; to estimate consumption requirements and production and marketing capacities under various potential situations; and to function as a service agency for analyzing a wide variety of problems and proposals which come to the Commission.

So far data have been summarized and sent to the Commission for barley, butter, castor beans and oil, cheese, cotton, corn, evaporated milk, fish liver oils, copra and coconut oil, several of the drying oils, oats, rice, rye, wheat, wool (including both carpet and apparel wool), pork, lard, soybeans, soybean oil, beef and veal, lamb and mutton, and the several types of tobacco (flue-cured, fire-cured, burley, Maryland, dark air-cured, cigar).

Special situation analyses also have been forwarded dealing with castor beans and oils, fish liver oils, lard, soybeans and soybean oils, requirements for vegetable seeds. Within the recent past, for example, the Bureau has forwarded statements dealing with wheat requirements in Europe; with possible developments in the domestic wool situation arising from War; with the dehydration of fruits and vegetables in relation to national defense; with the tin situation in relation to United States requirements, for cans, including home canning; and with the numbers, prices, and distribution of mules.

The Bureau has also examined a proposal to shift some of the power and equipment of the TVA to nitrogen production. The Bureau has made available to the Defense Commission data bearing on the problem of locating war industries in rural and semi-rural areas where surplus labor is available.

Research and service activities of this kind have required the time of an important portion of the Bureau's staff. As the Defense Program

expands and intensifies, the demands on the Bureau will doubtless increase. Several members of the Bureau are spending a large share of time on committees organized by or for the Defense Commission, and some employees have been detailed to the Defense Commission for varying periods.

III. REGIONAL AND NATIONAL PROGRAM DEVELOPMENT

Parts I and II of this statement make it apparent that the Bureau's methods of program-building for agriculture within the broad framework of the legislative enactments laid down by Congress incorporates the practical experience of the farmer as well as observation and analysis by trained technicians. But since the farm problem in the more than 3,000 counties of the United States varies almost from county to county, the need for integrating the recommendations rising out of specific local farm needs and specific research projects is acute. Programs of regional and national action require a national point of view applied to a multitude of local as well as national and international facts. In this phase of its work the Bureau seeks to focus the experience of the farmers, the results of research, and the administrative experience of the Department. For this purpose the Department established the Inter-Bureau Coordinating Committee, under the leadership of the Bureau of Agricultural Economics.

The Interbureau Coordinating Committee, composed of representatives from the action agencies and other bureaus of the Department, is a co-operative program-building body. It is not concerned with administrative coordination, except insofar as the need for such coordination may be minimized by careful formulation and development of programs. The Inter-Bureau Coordinating Committee is concerned with the formulation, development, and appraisal of the farm program, and of the effectiveness with which it simultaneously serves national objectives and local needs. To this committee come reports and proposals from county and State land-use planning committees, from research workers, and from the administrators of the action agencies. The committee, in turn, after thorough investigation and analysis, reports its finding and its recommendations for action to the Agricultural Program Board and to the Secretary of Agriculture. The program board is the general policy-making and policy-reviewing body of the Department, subject of course to final decision by the Secretary. It is this phase of the Bureau's work which serves to bring together the results of economic research with the problems arising in state and regional agricultural areas in the development of Department-wide plans and programs.

The first task before the Interbureau Coordinating Committee when it was set up in 1939 was to formulate ways and means of getting the program-planning process under way in the States and counties. It worked out the necessary organizational and operating procedures and employed the united energies of the Department, in cooperation with the state colleges, in inaugurating cooperative land-use planning.

The next major effort of the committee was to appraise, and where advisable, to recommend changes in the 1940 program of the Agricultural Adjustment Administration. Some of these recommended changes have been in effect during 1940. The committee further called attention to a number of major problems to which it felt serious study

must be given. The committee sought to iron out such conflicts in the Agricultural Adjustment Administration as that between its benefit payments for cash crops in some areas and the submarginal land purchase program. It also brought to the attention of the Agricultural Adjustment Administration the need for measures to insure the retention by share tenants and croppers of their equitable share of its allotments and benefit payments and asked for a consideration of the whole question of payments. It urged upon the Agricultural Adjustment Administration the need to determine the effects its program was having, and was likely to have, on the low-income farm group and on the small farmer.

Displacement of small farmers, the coexistence of heavy soil erosion and large numbers of low-income farm families in the same land areas, increasing tenancy and serious credit difficulties -- problems which were raised in connection with the report on the Agricultural Adjustment Administration program -- called for a series of reports with recommendations for action. Many of these recommendations to the Agricultural Program Board can and are being translated into action within existing legislative and budgetary authority. Some recommendations will require amendments to existing legislation, or new legislation. An example of the latter is the carefully worked out proposal for a rural conservation works program, addressed to the fact that the rural areas most in need of conservation measures are in most cases the same areas in which farm incomes are lowest and rural unemployment highest. The committee estimates that there is an unused labor supply of at least 450,000,000 man-days each year in rural counties in which 1,600,000,000 man-days of labor could be profitably put to work saving the soil and the forests.

Regional Problems Being Met:

In dealing with a national program regional differences and the particular problems they present call for special attention and careful planning. Particularly effective work is being done through interbureau coordinating committees in meeting broad regional problems of national significance in such areas as the Mississippi Delta, the Columbia Basin, and the Yazoo area.

In both the Mississippi Delta and the Columbia Basin vast areas of land are being reclaimed as a by-product of large national programs in flood control, water conservation and power development. In the Columbia Basin alone about a million acres are likely to come into production and even a larger area is being opened for sale and settlement by private operators in the Mississippi Delta. The Bureau, in cooperation with other Departments of the Government, is seeking to bring order out of chaos and provide for the wisest use of this land.

The Inter-Bureau Committee has made possible effective cooperation with the States in improving landlord-tenant relations. A practical, flexible farm lease has been developed, and thousands of these lease forms have been printed and distributed to tenants and landlords. This lease, safe-guarding the interests of both tenant and landlord, is already in use

by the Farm Security Administration, and its use is actively encouraged by other agencies.

Measures recently adopted to meet production and surplus distribution problems in agriculture -- crop insurance and the stamp plan -- are being closely analyzed by the Inter-Bureau Committee. The growing problems in the field of agricultural labor, rural housing, rural electrification, and farm credit are now under study by the committee, and reports with recommendations for action, where necessary and possible, will be presented to the Program Board.

A comprehensive study of technological developments in agriculture has recently been completed by the Interbureau Coordinating Committee. The committee has sought to look ahead and estimate the probable trend of technology in agriculture for at least the next decade. It has appraised the economic and social effects and implications of these changes and indicated lines of action which could be taken to cushion their adverse effects. The report of the committee foresees an increased labor displacement of at least 350,000 farm families as a result of an increase of 500,000 in the number of tractors in use in the next 10 years. An increase in tenancy, intensification of population pressure, a larger farm output and wider fluctuation in income per farm are among other probable effects of the technological revolution on the farm. Measures to provide employment and security to displaced and underprivileged people, a more adequate program for farm labor, assisting farmers to develop new sources of employment and self-help, and measures to stabilize farm economic conditions are suggested by the committee for public consideration.

Finally, the Interbureau Committee has had to consider the impact of war and the defense program on agriculture. It is assumed that the smooth functioning of the agricultural organization is essential to defense, and it is generally recognized that the several programs administered by the Department already need general reexamination as a result of the defense program and the war. Some of the problems immediately ahead, in the judgment of the Interbureau Committee, are these:

- (a) The need for increasing the consumption of food and clothing among the low-income groups of the Nation.
- (b) The need for governmental aids or devices if agricultural exports are to be continued.
- (c) The need for working out an agricultural price policy and for evaluating alternative methods of direct and indirect price control.
- (d) The need for anticipating the readjustments that may be required at the end of the defense effort, including questions of price policy, of new sources of employment for agricultural people, of reducing the farm debt load, of seeing that the agriculture in areas surrounding defense industries which will be closed down at the end

of the defense effort is rehabilitated, and of seeing that we do not overlook the fact that soil conservation is an essential element of any continuing defense program.

We are faced also with an especially difficult problem in the South, due to the concentration of rural population in this region and the decline in the foreign market for its chief product, cotton, and the intensity of the problem in this area is certain to be further increased by the current war and its aftermath.

The fact that the American nations are the world's greatest surplus granaries raises real problems in reference to the world order, including trade relations, which we may face after the war. If this country were forced by world events to adopt what is essentially a self-sufficient policy, American agriculture would, of course, feel the effects in many ways.

As the Bureau is now organized and functioning, it should be possible, largely within the framework of existing legislation, to adapt the comprehensive national farm program to the new economic environment which the war and the defense program are creating. With foreign markets for most farm commodities already seriously affected there is acute need for attention to every possible method of expanding the domestic market for farm products. There is a comparable need for consistent and intensive attention to the task, long neglected, of developing adequate marketing methods and policies for the distribution of farm products. Finally, the growing pressure of population on the land, the signs of which come to the surface every day as the migrant problem, the farm labor problem, the share cropper problem, the rural health and school and standard-of-living problem, -- this profound human problem must be dealt with.

IV. RECAPITULATION

The preceding sections of this statement have arbitrarily divided the work of the Bureau into three categories and described in some detail functions and operations, have briefly summarized some of the work already done, and have suggested work that ought to be done. In practice, the Bureau finds it must function as a unit, with the land-use planning, research, and program-building functions merging into one. The significant unit of organization in the Bureau, therefore, is the particular agricultural problem under attack.

To recapitulate: The Department of Agriculture is charged with the responsibility of administering, under the enactments of Congress, the most comprehensive and extensive farm program in the nation's history. It is the continuing task of the Bureau of Agricultural Economics, as the program development and economic research agency of the Department, to insure that this program meets the farmers' needs.

The war and the national defense program have confronted us with new problems. The aftermath of war is certain to present additional difficulties. Both the present and future agricultural situations require a large contribution from this Bureau.

It has become increasingly apparent that something must be done to expand domestic consumption of farm products, in view of the export situation. Work by the Bureau in this field should proceed on a scale never before attempted.

Problems in the whole field of marketing and distribution of farm products have never been vigorously enough attacked. We are the most efficient producing nation in the world. We cannot say as much of our distributing systems. We need to devote as much study and planning to correcting the inefficiencies in our distributive system as we have done in improving our methods of production. The first steps should be the detailed analysis of the marketing system, followed by recommendations and action programs for corrective measures.

Finally, and perhaps most fundamental of all, agriculture and the Nation face an acute problem arising from the pressure of population on our land resources. The Department of Agriculture will be shirking its responsibilities unless it can devise ways and means of solving this problem, insofar as agriculture can solve it.

The total appropriation here requested for the program-building and economic research functions of the Department, constitutes less than four-tenths of one percent of the 1942 Budget estimates for the action agencies of the Department.

SUPPLEMENTAL FUNDS

Direct Allotments

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Special Research Fund, Department of Agriculture:</u> For special researches on economic factors affecting the farm industry.....	\$58,515	\$60,860	\$38,060
<u>Salaries and Expenses, Agricultural Adjustment Administration:</u> Surveys, investigations, and research into the factors affecting and the plans, programs, and methods of accomplishing the policy and purpose of agricultural adjustment; and cooperation with Federal, State, county, and other local organizations in formulating and coordinating programs for the economic use and conservation of land and agricultural marketing and surplus control.....	429,675	438,130	438,130

SUPPLEMENTAL FUNDS - Continued.

Direct Allotments - Continued

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Flood Control, General (transfer to Agriculture):</u> For preliminary examinations and surveys for run-off and water-flow retardation and soil-erosion prevention on watersheds of flood-control projects authorized by law.....	\$588,978	\$711,460	\$380,610
<u>Development of Water Facilities, Arid and Semiarid Areas, Department of Agriculture:</u> Assistance in the development of a program for providing facilities for water storage and utilization, to be reflected in better utilization of land resources.	24,678	25,000	30,000
<u>Loans, Grants, and Rural Rehabilitation, Department of Agriculture:</u> Surveys in connection with water conservation, dams, reservoirs, and other facilities for water storage and utilization....	196,480	195,000	179,000
<u>Emergency Relief, Agriculture, Federal Non-Construction Projects (Transfer from W.P.A.):</u> Study of economic status of farmers securing standard farm security loans.....	117,593	78,889	--
<u>National Industrial Recovery, Public Works Administration (Allotment to Agriculture):</u> Cooperation with the National Resources Planning Board on a study of numbers and distribution of the population in the Northern Great Plains	4,878	--	--
Total, Supplemental Funds (direct allotments).....	(a) 1,420,797	(a) 1,509,339	1,065,800

(a) Exclusive of allotments from which transfers are proposed in the 1942 estimates, as shown in the Budget schedules.

OFFICE OF FOREIGN AGRICULTURAL RELATIONS

(a) SALARIES AND EXPENSES

Appropriation Act, 1941	\$196,396
Budget Estimate, 1942	<u>221,716</u>
Increase	<u>25,320</u>

PROJECT STATEMENT

Project	1940	1941 (Estimated)	1942 (Estimated)	Increase
Foreign agricultural relations (Foreign competition and demand)	\$194,477	\$196,396	\$221,716	+ \$25,320(1)
Unobligated balance	1,919	- -	- -	- -
Total appropriation	196,396	196,396	221,716	+ 25,320

INCREASE

(1) The increase of \$25,320 is requested for the employment of additional personnel urgently needed to enable the Department to deal more effectively with the critical and emergent situation arising out of present world conditions as they affect our foreign trade in agricultural commodities. The funds would be used as follows:

4 Agricultural Economists, 1 at \$2,000, 1 at \$4,600 and 2 at \$5,600	\$17,800
4 Statistical and secretarial clerks, 2 at \$1,620 and 2 at \$1,800	6,840
Total permanent - 8	24,640
Deduct lapses	1,220
Net for personal services	23,420
Supplies, materials, communication service, equipment, etc.	1,900
Total	25,320

The ever-changing world situation has in recent times brought with it new methods of handling foreign trade. In foreign countries it has in most cases resulted in complete governmental control of foreign trade through establishment of a new and extensive foreign trade agency. Because of these foreign developments it has become necessary for the Government of the United States to participate more actively and more directly in foreign trade operations. But instead of establishing a new and extensive organization for this purpose the United States has developed a system of interdepartmental collaboration which utilizes existing agencies. Adequate representation from the Department of Agriculture

must be provided on interdepartmental committees established under this procedure if agriculture is to receive full and proper consideration.

The responsibility for Department of Agriculture representation on these interdepartmental committees has been assigned to the Office of Foreign Agricultural Relations. With its present limited staff the Office is not in a position to discharge this responsibility in an effective manner and at the same time carry on its other work. This is illustrated by the fact that the Director of the Office of Foreign Agricultural Relations represents the Department on approximately twenty interdepartmental committees including such important ones as the Executive Committee on Commercial Policy, the Committee on Inter-American Economic Problems, the Trade Agreements Committee, and the Board of Trustees of the Export-Import Bank. The requested increase would provide for additional workers with special qualifications for representing agriculture on these interdepartmental committees.

These additional workers would, for the most part, be individuals qualified in the field of international trade and conversant with departmental policy, so that they could assist in the highly specialized and important work described below.

(1) Negotiations with representatives of foreign governments regarding the sale of American agricultural products abroad. Such negotiations are now proceeding actively in respect to sales to the United Kingdom but will undoubtedly be extended to other European countries at the end of the current European war.

(2) Negotiation of international commodity agreements. The primary purpose of such agreements is to assure the principal exporting countries of fair shares of the existing world import requirements. The United States is already a party to the International Sugar Agreement and participated actively in the negotiations for an International Wheat Agreement, which appeared to be nearing successful conclusion at the time war broke out in September 1939. This work will become increasingly important as a result of resolutions endorsing such agreements passed at the recent Havana Conference of Foreign Ministers of the American Republics.

(3) Representing the Department of Agriculture on numerous interdepartmental committees, particularly subcommittees of the Executive Committee on Commercial Policy. These subcommittees are dealing constantly with current problems facing the Government of the United States in the field of foreign trade. They are composed of representatives of each of the Federal agencies concerned with foreign trade. It is extremely important that the Department of Agriculture be strongly represented on such committees.

(4) To plan, direct, and coordinate participation by the Department of Agriculture in the general program of cooperation between the Government of the United States and the governments of the other American republics under the terms of the Acts of Congress authorizing such cooperation: namely, Public No. 355, 76th Congress, approved August 9, 1939, and Public No. 545, 75th Congress, approved May 25, 1938.

To carry out the above work it will be necessary to add at least three experienced and capable negotiators to the staff of the Office of Foreign Agricultural Relations. They must be men who are not only familiar with American agriculture in its relation to foreign trade but able to present effectively the point of view of agriculture in the various interdepartmental and intergovernmental discussions. Specifically, it is proposed to employ two Principal Agricultural Economists and one Senior Agricultural Economist as negotiators, whose combined annual salaries would total \$15,800. These men will also require clerical and lower-grade professional assistance in conducting studies and preparing briefs designed to present this Department's attitude on questions of an interdepartmental nature, consisting of one Junior Economist and four stenographic and clerical assistants whose combined salaries would total \$8,840. The remainder of the requested increase of \$25,320, or \$1,900, would be used for the purchase of necessary supplies and equipment and for communication service.

Major Problems in the Foreign Situation

Since the beginning of the world depression in 1929 there has been a world-wide tendency toward more direct intervention by governments in the field of foreign trade. This intervention has reached its ultimate stage in the totalitarian states of Germany, the Soviet Union, Italy and Japan, but even before the outbreak of the European war democratic countries such as the Netherlands and the Scandinavian countries had adopted measures of direct governmental control of foreign trade.

With the advent of the European war the tendency toward direct governmental control of foreign trade has been greatly intensified. In the United Kingdom, for example, all foreign trade, both export and import, is under the direct control of governmental authorities. In the United States the tendency is illustrated by the adoption of legislation permitting the licensing and, in effect, the prohibition of exports in the interests of national defense. Obviously, such activities vested in various agencies require constant coordination.

Regardless of how long the current European war may continue or which country may emerge victorious, there is no room for doubt that foreign trade will continue for some years to come to be dominated by central governments. This means that if the United States is to maintain a reasonable share of international trade in the post-war world it must develop adequate methods for dealing with foreign trade problems.

Probably more than any other segment of the economic life of this country, agriculture is deeply concerned in the development of programs and policies affecting foreign trade. The agriculture of the United States has developed historically on the basis of reliance on foreign markets for the disposition of substantial proportions of the principal export crops. For example, we normally export 55 percent of our cotton, 30 percent of our tobacco, 30 percent of our lard, 20 percent of our wheat, and important percentages of numerous other agricultural commodities including pork, fresh apples and pears, and dried fruits.

Looking at agriculture as a whole, the potential crop area of the United States is approximately 360 million acres. In years of ordinary weather and fairly good economic conditions only about 300 million acres are needed to fill the requirements of our domestic market. The remaining potential area of 50 to 60 million acres can produce foods, feeds, fibers and tobacco which enter, directly or indirectly, into foreign markets. At the present time, however, our export markets are absorbing produce from less than 20 million acres.

Before the World War of 1914-18 the problem of disposing of our agricultural surpluses was relatively simple. We were a debtor country and could pay our debts with the surplus products of our agriculture. Since that time, however, we have become a creditor nation and the problem has become much more complex. Countries that formerly imported our agricultural products have encouraged domestic production and the control of foreign trade in those products. There has also been an increase in the competition from other and newer agricultural surplus-producing countries.

All of this means that if we are to maintain even a reduced volume of agricultural exports we must be fully prepared to battle for our interests. This requires that we give particular attention to the following:

(1) The restoration of foreign markets for our agricultural products and the protection of our domestic markets through such devices as export subsidies, import quotas, and foreign loan programs, the latter administered by the Export-Import Bank, direct negotiations with representatives of foreign governments for the sale of our agricultural surpluses, and the negotiation of international commodity agreements.

(2) Problems arising out of the European war which have caused the diversion of the agricultural surpluses of other countries from their former European markets to the United States.

(3) Obligations incurred as the result of the resolutions passed at the recent meeting of Ministers of Foreign Affairs of the American Republics at Havana, which involve the United States in a program of co-operation with the Latin American republics in the economic field. Since the Latin American republics are primarily dependent on agriculture, this involves the important problem of finding satisfactory methods of disposing of hemisphere surpluses.

The task of the Office of Foreign Agricultural Relations is to keep our domestic producers reliably informed in regard to foreign developments affecting our trade in agricultural products and to protect and promote the interests of American farmers in matters affecting the agricultural segment of our foreign trade, which on the export side averaged over three quarters of a billion dollars a year during the three years immediately preceding the outbreak of the war in Europe.

WORK UNDER THIS APPROPRIATION

The Office of Foreign Agricultural Relations was established with two general objectives in mind - (1) to carry out the functions of the Secre-

tary of Agriculture under the Act of June 5, 1930 (7 U.S.C., 541-545); and (2) to function in a staff relationship to the Secretary of Agriculture in coordinating the relations of the Department of Agriculture in respect to foreign trade and allied problems and policies with the Department of State and other Departments and agencies of the Government and with foreign governments and private agencies, either through the Department of State or direct.

(1) Act of June 5, 1930. - The purpose of this Act is to encourage and promote the agriculture of the United States and assist American farmers to adjust their operations and practices to meet world conditions. Specifically, this requires the acquisition of information regarding world competition with and demand for agricultural products and the production, marketing, and distribution of said products in foreign countries. American farmers should, for example, be kept informed as to potential competition from other exporting countries and as to probable increases or decreases in foreign markets for their agricultural surpluses.

(2) Coordination of Foreign Agricultural Relations. - One of the major activities of the Office of Foreign Agricultural Relations under this function has been the coordination of the activities of the Department in respect to the reciprocal trade agreements program.

A second activity of the Office has to do with the coordination of the Department's activities under Sections 22 and 32 of the Agricultural Adjustment Act of August 24, 1935, which pertain to import restrictions and export aids, respectively.

The Office of Foreign Agricultural Relations is further charged with coordinating the activities of the Department of Agriculture under the Act of Congress of August 9, 1939 (22 U.S.C. 249), an act providing for closer and more effective relationships between the United States and the American republics. The Department's objective in this latter program is to encourage the production in Latin America of rubber, quinine, and other tropical and semi-tropical plant products which are not produced in the United States but must be obtained from far-distant areas. The accomplishment of this objective would make our sources of these materials more secure, create additional purchasing power in Latin America for the products of American agriculture and industry, and tend to divert the Latin American countries from the production of Temperate Zone plants already provided in more than sufficient quantities in the United States.

Finally, the Office of Foreign Agricultural Relations is charged with coordinating the activities of the Department under the Act of May 25, 1938 (5 U.S.C. 118e), an act authorizing the temporary detail of United States employees possessing special qualifications to governments of American republics and the Philippines.

The work of the Office under funds allotted from the Agricultural Adjustment Administration and the Surplus Marketing Administration, as shown in the Budget schedules, pertains primarily to the collection of information on foreign conditions of special interest to those organizations and the analysis of that information with particular reference to the peculiar needs of

those concerned with administration of the action programs under Sections 22 and 32 of the Agricultural Adjustment Act of August 24, 1935. The curtailment of our foreign markets and the possible diversion to the United States of agricultural surpluses accumulated in other agricultural exporting countries has greatly increased the demands on the Office for this type of work.

Mention should also be made of the work of the Office under funds appropriated to the Secretary for encouraging rubber production in the Western Hemisphere. The task of the Office of Foreign Agricultural Relations is, first, to make the necessary arrangements through the Department of State for the cooperation of the foreign governments and, second, to stimulate interest on the part of private organizations in following up the technical surveys and experimental work by establishing the production of rubber in Latin America on a commercial scale.

Coordination of the foreign relations of the Department of Agriculture involves the planning and directing of the Department's participation in foreign trade programs such as the reciprocal trade agreements program. In this connection the Office provides departmental representation on the various interdepartmental committees engaged in the conduct of the trade agreements program. The Office also coordinates the Department's action programs with the general commercial policy of the United States, which is primarily a function of the Department of State. This involves clearance with the Department of State of proposals pertaining to import restrictions and export aids for agricultural products. The coordination work also pertains to the Department's activities in the general program of cooperation between this Government and the governments of the other American republics. Examples of this type of activity include the recently signed International Coffee Agreement and the promotion of the production of rubber and other complementary products in Latin America.

The general economic work of the Office includes the collection, compilation and analysis of foreign agricultural production and international trade statistics as well as information on world trade barriers, export aids, and other Government policies affecting American agriculture.

The analytical or research work of the Office is specifically related to foreign competition with and demand for individual agricultural commodities as well as foreign competition and demand in general. From time to time the Office sends abroad commodity specialists who give particular attention to competitive potentialities in foreign production and to actual and potential changes in the foreign demand for those products.

The information collected and the results of the research performed are made available to the rest of the Department. This frequently requires special compilations.

The information collected and analyses made by the Office are made available to the public in the weekly "Foreign Crops and Markets" and the monthly "Foreign Agriculture." Approval has recently been received to publish an additional monthly entitled "Agriculture in the Americas" in order to inform the public of the progress of the Department's activities in encouraging the production of complementary products, particularly rubber, in Latin America.

SUPPLEMENTAL FUNDS

Direct Allotments

Projects	Obligated, 1940	Estimated obligations, 1941	Estimated obligations, 1942
<u>Exportation and Domestic Consumption of Agricultural Commodities:</u> For collection of information on foreign developments arising out of present disturbed world conditions as affecting markets for agricultural surpluses	\$1,490	\$35,000	\$35,000
<u>Salaries and Expenses, Agricultural Adjustment Administration:</u> For statistical and other services in connection with agricultural adjustment	24,995	31,800	31,800
<u>Rubber Investigations:</u> Encouragement of rubber production in the Western Hemisphere	- -	20,000	20,000
Total, Supplemental Funds (Direct allotments)	26,485	86,800	86,800

WEATHER BUREAU

Note.—Pursuant to the provisions of the Reorganization Act of 1939 and Reorganization Plan No. IV, the Weather Bureau and its functions have been transferred to the Department of Commerce, except that the Department of Agriculture may continue to make snow surveys and to conduct research concerning: (a) relationship between weather and crops, (b) long range weather forecasting, and (c) relationships between weather and soil erosion. The \$6,318,870 appropriated for the Weather Bureau in 1941 was, accordingly, distributed as follows:

Department of Commerce:	
Salaries and Expenses, Weather Bureau ...	\$6,314,870
Department of Agriculture:	
Salaries and Expenses, Agricultural	
Marketing Service: Crop and Livestock	
Estimates	4,000
	<u>6,318,870</u>



